American Fruit Grower

APRIL • 1955

• BERRY AND SMALL FRUITS GUIDE •

HERE'S HOW it pays to package in film made of BAKELITE Polyethylene

Packaging by **Milprint Inc.**, Milwaukee, Wisconsin.

"... our savings are high"

That's only one part of the advantages Elon Gilbert* finds in packaging "Apple King" apples in bags manufactured from film made of BAKELITE Brand Polyethylene.

One of the northwest's leaders in packaging bagged fruit, Mr. Gilbert says, "We use polyethylene bags because they give us safety and there is less danger of breakage. They prevent dehydration of fruit and those varieties that are prone to shrivel store very well in polyethylene bags. Our plant uses a special line for bagging. After we get our line set up, *our savings are high*. We believe that the bags move the fruit faster at the retail level—sell the fruit more quickly."

Whether you grow or ship apples, potatoes, or any of many other fruit and produce items, the protection, brand identification, and sales appeal of polyethylene bags can mean greater sales at better farm, terminal and retail prices. Throughout the country there are suppliers of packaging bags made of film produced from BAKELITE Polyethylene. See your supplier today, or for a free informative booklet write Dept. BT-105.

*Mr. Elon Gilbert is a large grower-shipper at Yakima, Wash., and former president of the Washington State Horticultural Association. Apples shown are "Starking Delicious."

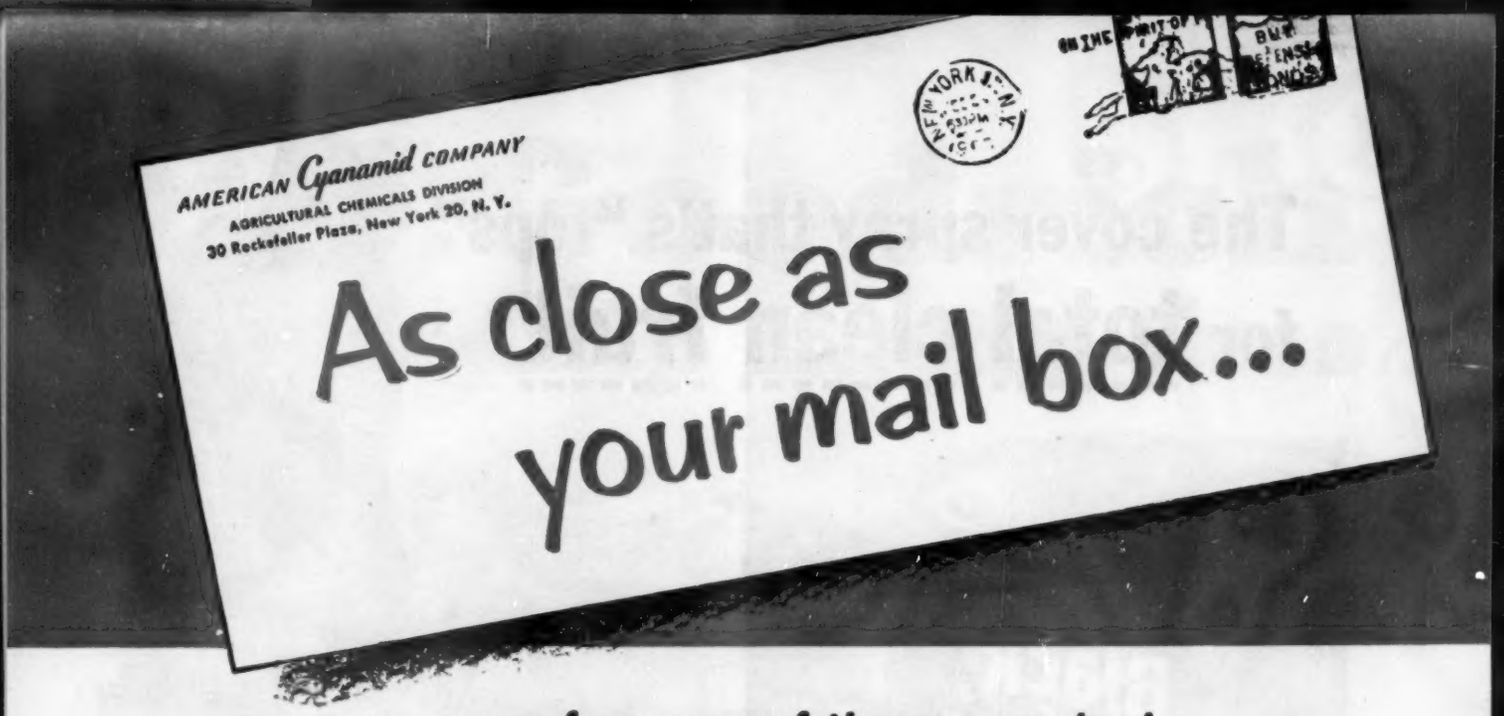
REMEMBER, TOO: Another wonderful product for your farm is plastic water pipe made of BAKELITE Polyethylene. So light in weight it's easiest to install.

SPECIFY FILM MADE OF

BAKELITE
BRAND
Polyethylene Plastic

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N.Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC


AMERICAN Cyanamid COMPANY
AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.
As close as your mail box...

—your free copy of the new, revised

MALATHION GROWER'S GUIDE

Write for it today so you will have at your fingertips the most up-to-date information about malathion when you plan this season's spray programs. Included in the latest edition of the GROWER'S GUIDE are many new uses for malathion in the protection of fruits and vegetables as well as ornamentals and livestock.

Malathion belongs in every spray schedule because it is the *only* phosphate insecticide offering superior insect control *plus* a wide margin of safety in handling.

Just mail the coupon to get your copy of the new MALATHION GROWER'S GUIDE. Contains handy, easy-to-read tables listing dosage and use recommendations for malathion insecticides on over 40 different crops . . . insects controlled . . . formulations . . . compatibility . . . how to prepare malathion sprays for fly control.

Malathion insecticides are available from well-known manufacturers under their own trade names. American Cyanamid Company makes only technical malathion.

AMERICAN Cyanamid COMPANY

AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.
PRODUCERS AND DEVELOPERS
OF MALATHION AND PARATHION TECHNICAL

MAIL THIS COUPON TODAY

AMERICAN CYANAMID COMPANY
AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.

Please send me free copy of new, revised MALATHION GROWER'S GUIDE.

NAME_____

ADDRESS_____

The cover spray that's "tops" for total clean fruit

You can simplify your vital summer spray program by using effective, economical Black Leaf 253 to replace complicated, expensive insect-control materials. With Black Leaf 253 you stop the bugs, you save on labor and materials, and you get the ideal insect control that turns out more clean, high-quality fruit.

Black Leaf 253 kills codling moth, green and rosy aphids, red-banded leaf roller, leafhoppers, European red mite, two-spotted mite, pear psylla, San Jose scale and many other pests. Leading growers in major areas find that Black Leaf 253 tops other spray programs consistently in total clean fruit at harvest.

Dustless Black Leaf 253 is *Tobacco Base* impregnated with 25% of DDT and 3% of Parathion by an exclusive process. It is compatible with all other spray materials recommended with DDT and Parathion. It is easy to use—just dump Black Leaf 253 in the water as the spray tank refills.

Cuts residue problems. Black Leaf 253 provides long-lasting insect control with essentially no visible residue. Permits development of high-quality color and finish.

Start now to increase your profits by using economical, effective Black Leaf 253. Buy it from your spray dealer or write for full information. Look for the Black Leaf on the red and white package.

DIAMOND BLACK LEAF COMPANY
Richmond, Virginia

OTHER FAMOUS Black Leaf® SPRAY MATERIALS

Aramite Emulsifiable	Ferbam Wettable
Aramite Wettable	Lindane Wettable
Arsenate of Lead	Malathion Wettable
BHC Wettable	Parathion Wettable
DDT Wettable	Phygon* Wettable
Dieldrin Wettable	T.D.E. Wettable
Black Leaf 40®	TEPP 40%
Black Leaf 155	TEPP 20%
Chlordane Wettable	

Many other pest control products also carry the reliable Black Leaf label—insecticides, fungicides, weedicides and rodenticides. Ask for full information.

*T. M. of U. S. Rubber Co.

The "LEAF" that protects the tree is a "Black Leaf" SPRAY

Entered as second-class matter at Post Office at Willoughby, Ohio, under the Act of March 3, 1879. Additional entry at Mount Morris, Illinois

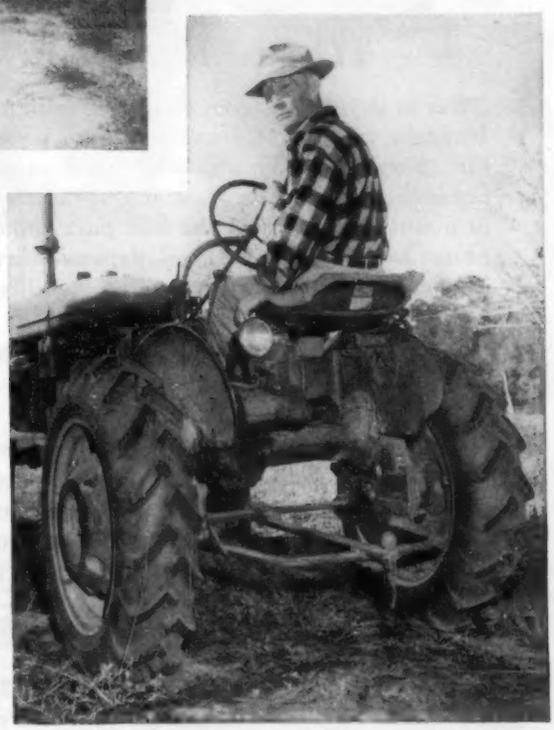
B.F.Goodrich
Power-Grip tractor tires

"TOPS FOR 'FULL THROTTLE' WORK"

Charles Cox (left, on tractor) farms 360 acres near Milton, Ind. He raises corn, wheat, oats and hay, markets 600 to 700 hogs a year. His sons work 2 adjoining farms of 215 acres. Cox's tractors get a workout on these farms, particularly since he reports his sons know only one speed—full throttle. B. F. Goodrich Power-Grip tires are tops, he says, in this severe service.

Rugged Power-Grip cleats are higher and longer, have a bigger face area to press against the soil. And there are more of them. Count the cleats on leading makes, and time after time you'll find that in the same size the B. F. Goodrich tire has more cleats. You get full traction in forward or reverse, work more land in less time.

"I never need chains with Power-Grip tractor tires"—"I've used other tires, but none come up to Power-Grip," says C. A. Moore (above left with helper, Dick Adolf), whose 960-acre farm is near Levant, Kansas. Power-Grip cleats are square cut at the shoulders to defy slippage. They're reinforced at the base to wear longer, and they're higher for deeper penetration. No other tire is wider than the B. F. Goodrich Power-Grip tire. No other tire gives so much power and wear for your money.



"Super Hi-Cleat tires really hold on slippery ground"—W. C. Barrett uses his Super Hi-Cleat-equipped tractor for plowing, harrowing and cultivating on his Monticello, Florida, farm. Low-cost Super Hi-Cleat tires "have done everything for me you can ask a tire to do," he says. See your B. F. Goodrich retailer for all your farm tire needs. His address is listed under Tires in the Yellow Pages of your phone book. Or write *The B. F. Goodrich Company, Tire & Equipment Division, Akron 18, Ohio.*

RESEARCH KEEPS B.F.Goodrich FIRST IN RUBBER

"PLENTY OF

POWER

TO PULL AND PUMP!"

"Wet or dry, my D4 goes anywhere with a 600-gallon sprayer. It tracks straight, so I can free both my hands for operating the spray boom. Wet weather used to slow us down; now, regardless of weather, I, alone, spray the 36 acres of apples in about 1½ days. But the best part about the D4 is its 'live' power takeoff. Just one good, dependable engine that delivers ample power to pull and pump steadily up and down my hills. I'm mighty pleased with the D4!"

Emmett Doddridge, Centerville, Indiana.

* * * * * * *

If you're tired of chaining out of the mud . . . of spinning wheels on sidehills . . . of fighting the steering wheel . . . high wheels knocking fruit off trees . . . pouring hundreds of gallons of high-priced gas into your tractor . . . pulling small loads . . . there's one solution to all your problems: A Caterpillar Diesel Orchard Tractor! Ask your Caterpillar Dealer to demonstrate the CAT* Diesel Tractor you need in your orchard where you can keep cost records, get the feel of real power, compare usefulness. NAME THE DATE . . . HE'LL DEMONSTRATE! Ask him for your free copy of "Caterpillar Orchard and Vineyard Tractors" or write Dept. AMF45, Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks — ®

World's First Diesel Orchard Tractor

American Fruit Grower

REG. U.S. PAT. OFF.

The Only National Fruit Publication

Vol. 75 APRIL, 1955 No. 4

FEATURED IN THIS ISSUE

Cover photograph by J. C. Allen and Son, is of blueberries grown by Elias Pertics and Son, Lapaz, Ind.

Grow Virus-Free Strawberries 13
By D. H. Scott and A. C. Goheen
Blueberries Are a Real Money Crop 14
By Eldon S. Banta
Blackberry Comeback? 19
Blackberries Pay Off! 22
By George W. Phinney
NPC Meets with Penn 24
By R. T. Meister
Fertilize Your Berries 28
By James M. Beattie
Pruning Brambles 34
The New Blueberry Varieties 36
By George M. Darrow
How to Select New Strawberry Varieties 46
Strawberries by the Ton 48
By Edward C. Koch
How Gus Ahrens Handles His Strawberry Patch 50
Use a Chemical Hoe for Controlling Weeds
In the North—By H. F. Carlson 52
In the South—By L. L. Danielson 53
Raspberry Varieties 59
Are Your Strawberries Profitable? 60

DEPARTMENTS

Letters to the Editor 10
State News 17
Fruit Pest Handbook 17
The Question Box 18
Windfalls 20
Calendar of Coming Meetings & Exhibits 45
New for You 56
Editorial Page 62

AMERICAN FRUIT GROWER

Published Monthly by
AMERICAN FRUIT GROWER PUBLISHING CO.
Willoughby, Ohio

E. G. K. MEISTER,
Publisher

RICHARD T. MEISTER, Editor

Editorial Staff
E. K. GOULD, Managing Editor
H. B. TUKEY ELDON S. BANTA
GEORGE M. ROSS, Art Director
J. D. AUHL, Production Manager

EDWARD L. MEISTER, Director of Advertising

District Advertising Offices
NEW YORK, Martin-Snow Co., 140 E. 46th St. Phone—Plaza 5-0878
CHICAGO, Peck and Billingslea, Inc., 185 N. Wabash. Phone—Dearborn 2-0292
SAN FRANCISCO, McDonald-Thompson, 625 Market St. Phone—Yukon 6-0647
LOS ANGELES, McDonald-Thompson, 3727 West 6th St. Phone—Dunkirk 7-5391
SEATTLE, McDonald-Thompson, 1008 Western Ave. Phone—Elliot 3767
HOUSTON, McDonald-Thompson, 3217 Montrose Blvd. Phone—Lynchburg 6711
DENVER, McDonald-Thompson, 222 Colorado National Bank Bldg. Phone—Keystone 4-4669

AMERICAN FRUIT GROWER is published by American Fruit Grower Publishing Co., Willoughby, Ohio. E. G. K. Meister, Publisher and Chairman of the Board; Edward L. Meister, President; Richard T. Meister, General Manager; Gilbert Meister, Vice-President. Subscription price $1.00 per year in U.S. and possessions, to Canada and other foreign countries $1.50. Single current copies 25c, copies over one year old 75c.

When changing your address, send us old as well as new; send the address label from your last copy; allow 5 weeks for the first copy to reach your new address.

Postmaster: Please send change of address "Form 3579" to AMERICAN FRUIT GROWER, Willoughby, Ohio.

Stauffer CAPTAN 50-W

GROWERS are getting *these* market plus-values... with CAPTAN:

- substantially increased yields of top-quality fruit!
- maximum disease control on a greater variety of fungi!
- safety to foliage and fruit!
- excellent finish and fruit color!
- improved storage quality!

CAPTAN 50-W is safe, compatible, and effective in controlling the following diseases of fruits:

Apples... Scab, Brooks Fruit Spot, Sooty Blotch, Fly Speck, Bitter Rot, Botryosphaeria Rot.

Peaches... Brown Rot, Scab.

Cherry... Leaf Spot, Brown Rot.

Avocado and Mango... Cercospora Spot or Blotch.

Market value of fruit is *substantially* increased with CAPTAN! A CAPTAN spray program regularly delivers *greater* yields of Extra Fancy fruit. The story about CAPTAN, the amazing fungicide, is being told in leading commercial and popular magazines.

Never before has a fungicide proved to be so generally useful, so effective, and yet so safe to plants!

Complete information on CAPTAN and its application is available from your Local Dealer, or write to *Stauffer Chemical Company, 380 Madison Avenue, New York 17, N. Y. Sales offices in principal cities.*

Captan Quotes:

"... have grown some of the finest apples any one could ask for ... Customers keep asking for those juicy, good-flavored Golden Delicious. They also keep better in cold storage when CAPTAN *is used ..."*

Stauffer CHEMICALS SINCE 1885

More Fancies!

NEW MERCURY FUNGICIDE STOPS APPLE SCAB!

This year, don't gamble with half measures. Increase yield and quality . . . get a big price premium for your apples by protecting them with new, economical ORCHARD BRAND MERCURY SPRAY. Simply apply at rate of ½ pint in 100 gallons of water.

This amazing fungicide can be used *two ways*: 1 — As a Preventive Spray *before* infection; 2 — To control scab *after* infection. It may be used alone, or with other compatible spray materials as shown on label directions.

Works Before or After *Infection! — Gives Effective, Low Cost Protection!*

ORCHARD® BRAND MERCURY SPRAY

Hurry . . . order early

ORCHARD BRAND SPRAYS & DUSTS

Here's The *RIGHT* Product for Every Need in Your Petal Fall Sprays!

For Scab:
- Orchard Brand Mercury Spray
- Ferbam Spray Powder
- Micro-Dritomic* Sulfur
- Phygon Spray Powder

For Curculio:
- 50% Methoxychlor Spray Powder
- Genithion* P-15 Spray Powder (15% Parathion)
- Lead Arsenate: Standard and Astringent
- 50% Dieldrin Spray Powder
- Dieldrin EM-1½ Emulsifiable Concentrate (1½ lbs. Dieldrin per gallon).

For Codling Moth:
- Genitox* S-50 and S-75 (50% and 75% DDT) Spray Powders
- Lead Arsenate: Standard and Astringent
- Genithion P-15 Spray Powder (15% Parathion)
- 50% Malathion Emulsifiable Concentrate
- 25% Malathion Spray Powder

For Mites:
- 50% Ovex Spray Powder
- 15% Aramite Spray Powder
- Genithion P-15 Spray Powder
- 40% TEPP Liquid Concentrate
- 25% Malathion Spray Powder
- 50% Malathion Emulsifiable Concentrate

For Aphids:
- Genithion P-15 Spray Powder
- 40% Nicotine Sulfate
- 25% Malathion Spray Powder
- 50% Malathion Emulsifiable Concentrate
- 40% TEPP Liquid Concentrate

For Red-banded Leaf Roller:
- 25% TDE Emulsifiable Concentrate
- 50% TDE Spray Powder
- Genithion P-15 Spray Powder (15% Parathion)

GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
Serving Agriculture from Coast to Coast

GC Allied Chemical

A whole new fleet of all-new haulers, ready for your job right now!

CHEVROLET'S NEW LINE OF TASK-FORCE TRUCKS

Altogether new! New models . . . more models . . . higher G.V.W.!
There's a handsome new Chevrolet truck for your farm hauling job!

Here's what happens when America's leading truck builder pulls out all the stops! Here are trucks that are new from the drawing board out!

NEW STYLING IN TRUCKS

Fleet, functional styling that fits your job! For the first time in any truck line, *two* distinctly different styling treatments are offered—one in light- and medium-duty models, another in heavy-duty models. You'll take pride in the modern, efficient appearance of your handsome new Chevrolet Task-Force truck.

A NEW OUTLOOK FOR THE DRIVER

The completely new Flite-Ride cab is everything a driver could wish for, from its big Sweep-Sight windshield to its concealed Safety Step that keeps clear of mud or snow!

6 NEW "HIGH VOLTAGE" ENGINES

With a new 12-volt electrical system for quicker, surer cold-weather starting, increased generator capacity and finer engine performance—plus a long list of other advances. They're the smoothest, quietest, most powerful Chevrolet truck engines ever built!

AND MUCH MORE THAT'S NEW

Like the smoother, load-steady ride . . . new High-Level ventilation . . . tubeless tires, standard on ½-ton models . . . Power Brakes* for all models, standard in 2-ton models . . . new 18,000 lbs. max. G.V.W. in 2-ton models. And there's a new, wider choice of transmissions, including new Overdrive* and Hydra-Matic*. New Chevrolet Power Steering* available, too.

See the newest things in trucks at your Chevrolet dealer's now—new Chevrolet Task-Force trucks! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**Optional at extra cost. Overdrive available on ½-ton models, Hydra-Matic on ½-, ¾- and 1-ton models.*

Do YOUR gardening the EASY power way

BOLENS

POWER-HO

GARDEN TRACTORS

featuring amazing

With this one-lever Versa-Matic control, a Bolens owner can choose any desired forward speed or reverse, without shifting, clutching or belt changing. All at full engine governed speed with no throttling down and loss of power. If operator releases handle when in reverse, tractor automatically goes into neutral—a great safety feature... Bolens 111 attachments for year 'round use include cultivators, lawn mowers and a rotary snow caster.

America's Finest Outdoor Power Equipment

MAIL COUPON TODAY!

BOLENS PRODUCTS DIVISION
Food Machinery and Chemical Corporation
314-4 South Park St., Port Washington, Wis.

I am interested in literature on:

☐ TRACTORS ☐ POWER MOWERS
☐ TILLERS ☐ CHAIN SAWS

Name_____

Address_____

City_____ Zone___ State_____

LETTERS TO THE EDITOR

Liberty Hyde Bailey

Dear Editor:

I deem it a gratifying and beneficial experience to have met Dr. Liberty Hyde Bailey at the time he was chairman of the Rural Life Commission sent on its now-historic mission by President Theodore Roosevelt. I was also introduced to the other members of that commission who were on the same train. Dr. Bailey was well acquainted with Prof. N. O. Booth who was at that time on the staff of the New York State Experiment Station. Booth and I had worked together at the fruit farm of J. H. Crawley of Rocky Ford, Colo.

Dr. Bailey and I have had some correspondence during the years since we met on that train. He bequeathed a rich store of information to the folk of his time and the oncoming generations.

San Antonio, Tex. Charles F. Ward

Dear Editor:

The article in AMERICAN FRUIT GROWER on Liberty Hyde Bailey is excellent. I know how difficult it is to boil down for a portion of a page enough of his contributions to give perspective to a tribute and appreciation. I liked especially the closing paragraph and especially the last sentence, which gives emphasis to his always looking to the future and never in retrospect.

Ithaca, N. Y. G. H. M. L.

Dear Editor:

I have read with much interest Dr. Tukey's comments on the life and accomplishments of Liberty Hyde Bailey, "Horticulture's Grand Old Man," and your editorial concerning Dr. Bailey in the February issue.

If I may have your permission, I would like to copy these articles in a newsletter, the "Maine Leaf," sent by the Department of Agriculture of the State of Maine to the florists and plantsmen of Maine.

Augusta, Me. Edward D. Johnson

You certainly may.—Ed.

California Peach Grower

Dear Editor:

As a California freestone peach and almond grower I certainly enjoy reading your publication. It gives a good picture of the industry as a whole, although at times I feel that we of the Central Valley are not mentioned as often as our volume might justify.

You might be interested to know that our California Freestone Peach Association is now making a good increase in membership among those who produce freestones for canning. We have employed Roy A. Wylie as manager. His office is at 1211 Kay St., P. O. Box 436, Modesto.

Winton, Calif. L. Thornton Powell

Progress in working together with other growers in solving growing or marketing problems means a stronger fruit industry and we are pleased to hear of the increase in membership of freestone growers in California. Reader Powell's suggestion on more stories from California is well taken. Watch for the Wood Fruit Company story about a diversified fruit operation at Atwater, Calif., including 195 acres of freestone and cling peaches, which will appear next month.—Ed.

Black Walnuts

Dear Editor:

I would like to write a few words in answer to the problem of Mrs. Robert M. Black on walnuts ("Letters to the Editor," AMERICAN FRUIT GROWER, February, 1955).

When there is not a large volume of walnuts to be processed, a corn sheller is an ideal husker and a concrete mixer is a very good cleaner. The nuts can be packaged in small packages and sold readily if they are attractive.

Further information pertaining to all phases of nut culture can be obtained through membership or literature of the Northern Nut Growers Association, Spencer B. Chase, Secretary, 2338 Parkview Ave., Knoxville, Tenn., or through the Indiana Nut Growers Association, Mrs. Franklin M. Harrell, Secretary, Route 1, Griffith, Ind. Mrs. Franklin M. Harrell

Likes February Issue

Dear Editor:

Congratulations on the February issue of the AMERICAN FRUIT GROWER. This was a fine job of summarizing up-to-date information on new chemicals for fruit.

Purdue University
Lafayette, Ind. Eric G. Sharvelle

Plastic Greenhouse

Dear Editor:

In regard to the story on the University of Kentucky plastic greenhouse in the February, 1955, issue, the question of snow loads and high winds bothers me somewhat. I wonder how the plastic house will behave under these conditions?

Lyons, Kans. G. F. Champe

You do not need to worry much about high winds and snow loads as far as the plastic goes. It will take very high winds up until almost May if the house is erected in late September or early October. If the framework is strong enough, the plastic will take almost any snow load. On the University of Kentucky house, the slope is enough so that snows slide off after getting several inches deep. However, a freezing snow will not slide off. In this case, temporary posts can be erected on the purlines almost every 10 to 15 feet.

According to E. M. Emmert of the University of Kentucky, a snow that put down two glass greenhouses did not bother 8 plastic houses in the vicinity.—Ed.

Dear Editor:

The plastic greenhouse looks revolutionary to me in the greenhouse field. It brings the cost of a greenhouse to the level of the ordinary gardener.

Marvin, S. D. Gregory Kunkel

Dear Editor:

I am enclosing 25 cents in coin to cover the cost of the plastic greenhouse plans. It seems a little bit of money went a long way in the Kentucky greenhouse. I am anxiously waiting for those working drawings.

Also, allow me to congratulate you on your magazine, for to a man over 70 years old it helps to simplify this ever-increasing chemical age. I wish you every success.

Lincoln Park, Mich. R. R. Humphrys

DOW

OVOTRAN WETTABLE
controls mites in *all* life stages
Effective against many mite species

Ovotran® Wettable has proved itself the best product you can buy for mite control on apples. It provides maximum control—*because it kills mite eggs.* It is effective against a wide variety of mite species. Its excellent residual properties enable it to kill mites over a long period of time. Because of its low toxicity to beneficial insects that prey upon mites, Ovotran Wettable gives growers the big advantage of combining *chemical and biological* mite control in one operation. An important addition to your pest control program—Ovotran Wettable is compatible with commonly used insecticides and fungicides. Use it early as a preventive spray.

DN-289® applied in the dormant stage is recommended to control a variety of *insects*, especially aphids, scale insects, twig borer, eye-spotted bud moth and mites. THE DOW CHEMICAL COMPANY, Agricultural Chemical Sales Department, Midland, Michigan.

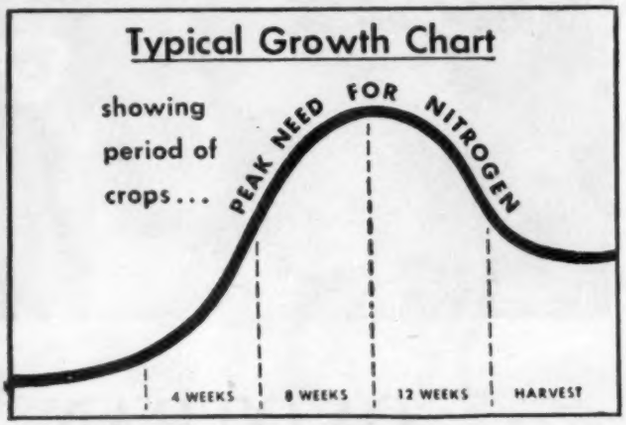
Application of Ovotran Wettable to apples in pink stage may be the first step in a spraying schedule to prevent mite build-up.

you can depend on DOW AGRICULTURAL CHEMICALS DOW

1. **"NuGreen" works fast** as a foliage spray. Combine it with pest-control sprays to save time, labor. Won't corrode equipment.

2. **"NuGreen" is efficient** for top dressing . . . resists leaching, stays in the soil. Releases nitrogen when tree growth needs it most.

3. **"NuGreen" is ideal for** application in irrigation systems. It dissolves readily in water, reaches roots because it's not fixed at soil surface.



4. **Different fruits need nitrogen** at different growth stages. For a quick nitrogen boost when the need is greatest, apply "NuGreen" in foliage sprays. For season-long feeding, apply early as top dressing.

For the most profit from supplemental nitrogen ...use NuGreen® FERTILIZER COMPOUND

Examples on this page illustrate some of the many reasons why "NuGreen" is your best buy when your crops need more nitrogen than is included in your other fertilizer materials.

"NuGreen" is concentrated . . . contains 45% nitrogen. It's in free-flowing shot form. Comes in 80-lb. bags. See your dealer for "NuGreen" and write to us for literature about its use on your particular crops.

E. I. DU PONT DE NEMOURS & CO. (INC.), POLYCHEMICALS DEPARTMENT,
WILMINGTON, DEL., OR 111 SUTTER STREET, SAN FRANCISCO, CALIF.

DUPONT
REG. U.S. PAT. OFF.
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

NuGreen® FERTILIZER COMPOUND

Your best buy in supplemental nitrogen

American Fruit Grower
• Fruit for Health •

Grow Virus-Free STRAWBERRIES

Millions of virus-free plants of some of the important eastern varieties are being planted this spring

By D. H. SCOTT and A. C. GOHEEN
U. S. Department of Agriculture

STRAWBERRY growers in eastern United States are faced with a new practice in strawberry production, the use of virus-free stocks. The first virus-free stocks sent to nurserymen in the spring of 1953 included 8 varieties: Blakemore, Catskill, Howard 17 (Premier), Klondike, Klonmore, Sparkle, Tennessee Beauty, and Tennessee Shipper. These were offered to strawbrry growers in the spring of 1954 to start the use of virus-free stocks in eastern United States.

The vigorous growth of the new stocks has focused keen attention on the program intended to provide high-quality plants for fruit growers. This spring moderate quantities of virus-free stocks of 16 other varieties are available for growers.

Varieties now being propagated by nurseries as substantially virus-free are **Albritton, Armore, Aroma, Bellmar, Blakemore, Catskill, Dixieland, Dunlap, Fairfax, Howard 17 *(Premier)*, Klondike, Klonmore, Massey, Midland** (very small stock), **Missionary, New York, Pocahontas, Robinson, Sparkle, Stelemaster, Tennesseean, Tennessee Beauty, Tennessee Shipper,** and **Vermilion.**

It is conservatively estimated that 150 million substantially virus-free strawberry plants will be available for planting in 1955.

A small number of virus-free plants of **Empire, Eden, Gem, Florida 90, Knovoy, Marion Bell,** and **Redstar** will be propagated by nurseries for the first time in 1955. Plants of these varieties should be released to growers in the spring of 1956 or 1957. At present no virus-free plants of Dorsett, Fairland, Fairpeake, Suwannee, Maytime, Lupton, or Temple varieties have been found.

Treatment of plants at 98° F. for 6 to 14 days in hot air may be a new means of obtaining virus-free stocks of the varieties now completely virus-infected. At the Oregon station plants of Redheart, Rockhill, Brightmore, Northwest, and Shasta have been freed of non-persistent viruses by such treatments, but further studies are necessary to determine whether the plants are free of all viruses.

The first virus-free plants in the stock-improvement program were found in 1949 and 1950 by J. B. Demaree, now retired, during his studies on prevalence of viruses in strawberries in eastern United States. They were propagated at Plant Industry Station, Beltsville, Md., until 5,000 to 10,000 plants of a variety were obtained.

These plants were used in 1951-53 experimental tests with co-operating nurserymen to determine whether nurserymen in eastern United States

(*Continued on page* 61)

Virus-free Catskill strawberry plants (left) have larger leaves and more upright growth than commercial plants (right). Photograph courtesy J. S. Bailey, University of Massachusetts.

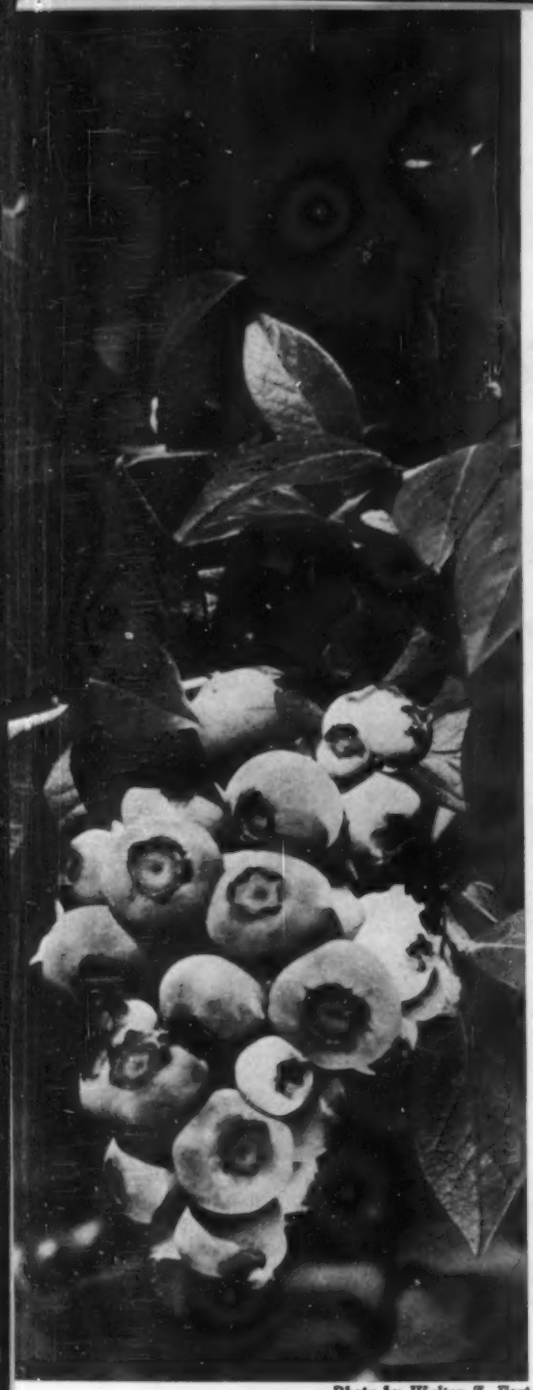


Photo by Walter Z. Fort
Cluster of ripe blueberries, Rancocas variety.

BLUEBERRIES

Follow four important cultural practices and you too can grow blueberries profitably

By ELDON S. BANTA

THE profitableness of a blueberry venture depends, to a large extent, upon the care of the plants. Cultivation, pruning, fertilization, and pest control are four "musts" for the blueberry grower. Yields—and profit—are in proportion to how well each job is done.

Cultivation—Weeds must be kept under control. A disc harrow does an excellent job between the rows. With the new hydraulically-controlled rotary hoes, weeds can be easily and quickly cleaned from the rows in both young and mature plantings.

One of these tools developed recently by David Friday, Hartford, Mich., is now widely used. Depth of cultivation can be adjusted from a half-inch to 8 to 10 inches. Cultivation must be kept shallow, since blueberry plant roots are shallow.

Charles Doehlert, a New Jersey grower, has reported great dollar savings with his rotary hoe. He figures that hand hoeing a blueberry planting costs between $20 and $50 per acre. This might be for one or several hoeings, depending on weed growth. With his new mechanical rotary hoe he found that one man on a 35-acre planting can hoe up to 7 acres a day at a cost of about $3.63 per acre. As the total acreage increases, the cost of mechanical hoeing decreases per acre. A mechanical hoe costs about $800.

Besides controlling weeds and aerating the soil, cultivation helps control certain diseases and insects. It helps destroy four major insects which spend most of their lives in the soil—blossom weevil, cranberry fruitworm, plum curculio, and blueberry maggot.

Frequent light cultivation in the early spring destroys the spore-bearing cups on mummies (infected fruits lying on the ground from the previous year) which cause mummy berry disease.

Left — Thomas Windon, Salisbury, Md., examines a highly productive plant on his 35-acre blueberry farm. Last year's pruning cuts can be seen, also big vigorous shoots formed during year. Plants this size produce about 3 quarts of berries.

John Molloy, Ohio grower, shows the kind of vigorous growth he likes to get on his blueberries. Vigorous shoots like this are cut in half at pruning time, produce lots of large berries.

This Ohio blueberry planting is mulched with 2 tons of sawdust per acre and mulch is maintained at a depth of 6 inches over the plant.

Pruning—Outside of harvesting, pruning is the blueberry grower's biggest single labor expense.

Regular pruning begins about the third year after planting and is done

. . . Are A Real Money Crop

annually. One of the first objectives is to remove the small bushy growth near the base of the plant which produces only small berries.

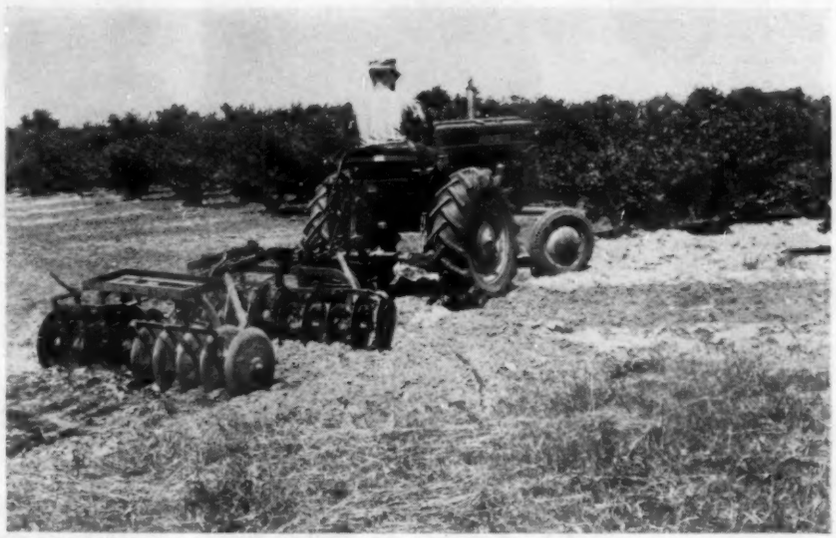
Further pruning is designed to remove dead and broken branches, thin and bushy wood inside the plant, old stems which have lost vigor to produce new growth, and reduction of the bearing wood by half. A fruiting branch carrying 12 buds would be cut back so that 4 to 6 good buds remain.

Photo by Walter Z. Fort

Cultivating head on rotary hoe, made by Friday Tractor Co., Hartford, Mich., reduces cost of weed control in the blueberry planting.

In general, the heavier the pruning the smaller the crop, the larger the berries, and the higher the percentage of early-maturing berries. Plantings on light soils low in organic matter usually require heavier pruning than plants on better soils. Light soils do not furnish enough moisture and nutrients for heavy crops, so they must be reduced by pruning.

Studies have been made on pruning methods to reduce labor cost and time. The older practice has been to use a combination of lopping shears and hand shears with some rubbing off of small growth by hand. Now interest lies in the use of lopping shears alone. Ernest G. Christ, of Rutgers University, in a recent study, has shown that on the average, two minutes per plant can be saved by using only lopping shears. At 1,000 plants per acre this would be a saving of 33 hours per acre in pruning time. The new method produces good yield and berry size. It tends to produce smaller plants composed of younger wood, which are easier to pick.



Douglas Blueberry Farm in Michigan uses a disc harrow for between-the-row cultivations.

Disadvantages of the lopper method seem to be these: It is easy to cause over-reduction of the crop; bottom cuts are too often not made close enough to the ground to eliminate the small bushy growth; and it cuts out some good wood and leaves some poor, the amount depending upon the skill of the pruner.

Fertilization—Rates of fertilization vary with age of planting, soil type, condition of plants, and amount of moisture available to plants. Dr. George Slate, of the New York Experiment Station at Geneva, recommends the use of sulfate of ammonia because the blueberry plant is a more efficient user of ammonium nitrogen than of nitrate nitrogen. This is especially true if blueberries are being grown on soils with a pH above 5.

John C. Cain, also of the Geneva station, reports that blueberries growing on a soil with pH of 5.5 and fertilized with ammonium sulfate make over twice the growth of plants fertilized with ammonium nitrate and almost 10 times the growth of those fertilized with nitrate of soda. The ammonium-fertilized plants had heavier and much greener leaves than the others. Further tests showed that yellow foliage could be changed to a healthy green in three weeks by fertilization with ammonium sulfate.

In Michigan Stanley Johnston, of the South Haven Experiment Station, suggests a special mixture of 8-8-8 fertilizer. The potash should come from sulfate of potash rather than from muriate of potash. Nitrogen should come from at least two different sources, such as ammonium sulfate and ammonium nitrate. This fertilizer is generally applied at the rate of 500 pounds per acre on productive plantings.

In northern Indiana Elias Pertics applies 800 pounds per acre of 3-9-18 in the spring. His soil is very high in organic matter, so he chose a formula low in nitrogen and high in potash.

John Molloy, just south of Cleveland, Ohio, applies ammonium nitrate to his blueberries at the rate of 300 pounds per acre each spring. He keeps his planting under a heavy sawdust mulch, 2 tons per acre and about 6 inches deep on plant rows, so needs lots of nitrogen.

In New Jersey Charles Doehlert suggests a split application of fertilizer. The first half is applied at the beginning of bloom, about April 10; the second half about June 1 when the fruit crop is beginning to develop rapidly. He bases the rate on potential yield of the planting.

For example, a planting that will yield between 350 and 500 trays (12 pints each) per acre should get 400 pounds of 8-8-8 per acre in each of the two applications. A planting yielding between 500 and 800 trays per acre should receive 500 pounds of the same analysis in each application. Doehlert further suggests an application of one-quarter pound of

(*Continued on page* 40)

The Puyallup red raspberry, developed by C. D. Schwartze and A. S. Myhre, assistant horticulturist, was introduced in 1954 and is expected to become a leading variety in the Pacific Northwest.

Berry Growing Progress in WESTERN WASHINGTON

New varieties, up-to-date cultural methods, and mechanization help to maintain high yields

By C. D. SCHWARTZE
Western Washington Experiment Station

NOT many acres of the earth's crust have ever produced 6 tons or more of any small fruit in a single crop. Western Washington produces such yields of strawberries, raspberries, blackberries, and blueberries, not merely occasionally, but often. Top yields reported have been 10 tons of strawberries and blueberries, 9½ of red raspberries, and 14 of blackberries. High yields of cranberries also are produced in coastal districts where this fruit is well adapted.

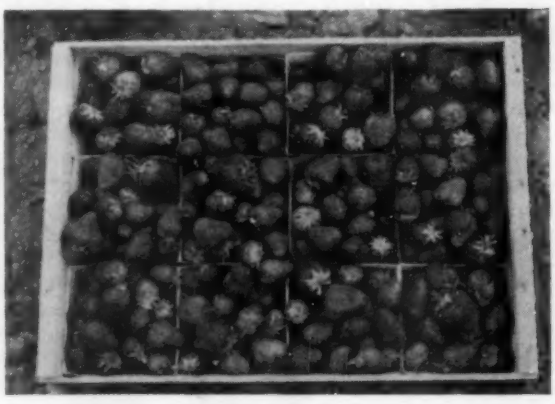
Berry growing has been profitable to many growers in this Puget Sound region in most of the last 50 years. A brief review of recent progress will give an idea of some of the problems solved or to be solved and some of the practices that have contributed to success in growing berry crops in this region.

Red Raspberries—Visitors often are startled by the vigor and height of red raspberry plants whose first-year canes usually reach a height of 9 to 10 feet. They are cut back to 5 feet for fruit production the second year. At harvesttime the straight rows, 7 or 8 feet apart, look much like thick hedges about 6 feet high, 3 to 4 feet thick, with the sides straight up and down, almost solidly covered with red and green berries.

Twenty-five years ago the name Cuthbert was practically syonymous with red raspberry. But time has changed the variety situation. The famous, standard-of-quality Cuthbert has given way to the higher-yielding Washington and Willamette varieties produced by plant breeders in Washington and Oregon. Recently the Washington Agricultural Experiment Stations released another new variety, named Puyallup, which has larger berries than Washington, better color than Willamette.

(*Continued on page* 42)

Above—Red raspberry plants grow vigorously in the Puget Sound region. J. N. Skinner, former assistant to Dr. Schwartze, is shown inspecting the Washington variety.



Left—The Northwest strawberry, Washington State's great plant breeding triumph, is rapidly displacing the famous Marshall variety in the Pacific Northwest area.

State NEWS

- **New England Growers Urged to Renew Old Plantings**
- **Hardy Peach and Raspberry Introduced in New Hampshire**

New England Apples

MASSACHUSETTS—New England apple growers must renew their old plantings if they are to maintain their marketing advantage in the East. This was the warning sounded by Fred Burroughs, secretary of the International Apple Association, at the 65th annual meeting of the Massachusetts Fruit Growers Association.

The right orchardist in the right location can make a good business out of orcharding, said Burroughs. But New England growers must keep up-to-date by planting new trees of the right varieties.

A prominent Stow orchardist, David C. Clements, died rather suddenly a short time ago.—*A. P. French, Sec'y, Amherst.*

Hardy New Peach

NEW HAMPSHIRE—A new peach variety that can get through the cold New England winters has been introduced by the University of New Hampshire. **Sunapee** is a yellow, oval freestone peach ripening in late August. Extremely hardy, it produced a good crop when the commercial varieties grown on the horticultural farm were a total failure due to low winter temperatures.

Also winter-hardy is the new red raspberry introduction, **New Hampshire.** It is vigorous, and produces firm, conic-shaped berries that ripen in midseason.

Two new strawberries have also been introduced. **Strafford** is a late-ripening variety that produces large red berries which hold their size well into the harvest season. **Phelps** is an early-ripening strawberry producing large fruit of good quality.

In the apple news, prepackaging of Baldwins in polyethylene bags, tried by several growers, has proved a good outlet for smaller-sized apples. Work with packaged McIntoshes earlier in the season was not satisfactory because the variety bruises too easily.—*E. J. Rasmussen, Sec'y, Durham.*

Blueberries Hold Interest

WASHINGTON—Interest, along with acreage, of blueberries is increasing in western Washington. At the annual meeting of the Western Washington Horticultural Association at Puyallup, blueberries shared equal program time with strawberries and cane berries, important crops in this area.

Officers elected at the meeting are Stanley Walters, Puyallup, president; Ted Knoblauch, Everett, first vice-president; Louis Carroll, Kent, second vice-president; and Morrill Delano, Puyallup, secretary-treasurer.

With the largest membership in its history, the association is looking forward to its 1956 annual meeting. Place is Fruitland Grange Hall, Puyallup; dates are January 4-6.—*Morrill Delano, Sec'y, Tacoma.*

FOUR-STATE MEETING

The annual four-state meeting of the horticultural societies of Pennsylvania, Maryland, West Virginia, and Virginia, will be held in Berks and Lehigh counties, Pennsylvania, with the State Horticultural Association of Pennsylvania as host. The meeting is tentatively set for the third or fourth week of July, depending upon maturity of cherries and peaches. This column will report the date as soon as it is set.

Strawberry Plantings

KANSAS—Improved moisture conditions have increased interest in new strawberry plantings. Some new acreage in peaches is also indicated, with early and midseason varieties favored.

Some bearing peach orchards will probably be lost to the new Kansas City-to-Oklahoma Turnpike. Construction, scheduled to start this spring, seems to be a hazard to some peach orchards in the Wichita area.—*William G. Amstein, Sec'y, Manhattan.*

Wet Months

MARYLAND—February and early March were happy times for fruit growers. Several good rains and two snowstorms added water to the dried-out soil and filled irrigation ponds to the top.

The bud-set on peaches seems rather good in spite of the very dry summer and heavy '54 crop. Apples are generally reported medium in bud-set, but some varieties, here and there, were expected to have heavy bloom. These varieties are Grimes, Rome, Jonathan, and Stayman, although some light-blooming blocks of these varieties have also been reported.—*A. F. Vierheller, Sec'y, College Park.*

(*Continued on page* 44)

FRUIT PEST HANDBOOK

(FORTY-SECOND OF A SERIES)

CONSTRICTION DISEASE

CONSTRICTION DISEASE, or peach canker as it is called in some sections, is a fungus malady of the peach characterized by the formation of numerous cankers on branches and shoots of the current season, followed by their death. This killing of the branches, or "flagging," so named because the bleached, stiff, dead leaves adhere, causes marked reduction in the bearing surface of the trees.

In some areas the extremely susceptible Golden Jubilee variety cannot be grown profitably because of the constriction disease. Other varieties such as Triogem, Summercrest, Redhaven, and Belle of Georgia also are seriously injured. Leaf spot and fruit rot phases of the disease have been recognized but they are of little importance.

The disease is prevalent in orchards along the Atlantic Seaboard from Maryland to Massachusetts. Its development appears to be favored by the humid conditions of the coastal regions; hence, it is practically unknown in the central portion of the country.

Superficially, the constriction disease cankers resemble those caused by the brown-rot fungus. The two are readily distinguishable, for brown-rot twig cankers form only after the buds have opened and the blossoms have been infected. In the constriction disease, the infections take place before the buds open so that there is usually an unopened dead bud at the center of the canker. Occasionally a constriction disease canker forms between the nodes; these cankers are, of course, readily distinguishable by their location from brown-rot cankers.

Constriction disease cankers apparently may be initiated any time during the growing season although there appears to be a

(Continued on page 58)

Typical shoot killing of peach caused by constriction disease, top photo. Lower photo shows "flagging." Courtesy USDA.

"Portable Sprinkler Irrigation

. . . a *Must* for our Orchard"

says C. E. Dutton, Milford Center, Ohio

Mr. Dutton, who began orchard irrigation in 1930, and has irrigated 21 out of the past 24 years, says, "We have used various types of irrigation methods and equipment over the past years. The season before last we purchased aluminum pipe and sprinklers. We have found this to be the best method of distribution we have ever used.

"We find that both apples and peaches respond equally well to irrigation during periods of deficient moisture. We produced very nice crops of both apples and peaches during a season even though we had only one rain of any consequence from late May until the first of December. As far as we are concerned portable sprinkler irrigation is very definitely a must in our orchard."

Mr. Dutton's story is typical of what sprinkler irrigation systems are doing for fruit growers in all parts of the country.

Plan production and increase the profits from your acreage with portable sprinkler irrigation. And remember—strong, lightweight, non-rusting Reynolds Aluminum Irrigation Pipe is the economical, efficient lifeline of your portable sprinkler system!

This sign identifies dealers who sell Reynolds Aluminum Irrigation Pipe.

This label identifies Reynolds Aluminum Irrigation Pipe.

Member of the SPRINKLER IRRIGATION ASSOCIATION

REYNOLDS ALUMINUM

FREE! "More Income Per Acre" —the illustrated booklet telling all about portable sprinkler irrigation.

Reynolds Metals Company
2558 South Third Street, Louisville 1, Kentucky

Please send me your free booklet, "More Income Per Acre"

Name_____

R.F.D. or Street_____

Town_____ State_____

THE QUESTION BOX

Don't be perplexed! Send us your questions—no matter how big or small. A three-cent stamp will bring you an early reply. Address: The Question Box, AMERICAN FRUIT GROWER, Willoughby, Ohio.

ALL-PURPOSE SPRAY

I am interested in a quick and effective spray schedule. What would you suggest?—*Indiana.*

The All-Purpose spray described on page 46 of the February, 1955, issue of AMERICAN FRUIT GROWER would probably be best for your needs. If this is not available from your local dealer, write the Farm Bureau Co-operative Assn., Inc., Columbus 16, Ohio, formulators of the spray. You should be able to raise fruit reasonably clean of insects and diseases with this spray, except possibly for scab on apples.

HOLY EARTH

An editorial on Liberty Hyde Bailey's *Holy Earth* appears in the February, 1953 issue of AMERICAN FRUIT GROWER. I would very much like to obtain a copy of this book, but have been unsuccessful in my search. Can you tell me where to get it?—*Washington.*

Write The MacMillan Company, 60-52 5th Ave., New York 11, N.Y., for copies of *Holy Earth.*

ZINC DEFICIENCY

I would like as much information as you can give me on zinc deficiency and its correction.—*Michigan.*

Symptoms of zinc deficiency are easily identified by small, narrow, chlorotic leaves and a tendency for the shoots to terminate in rosettes, that is, clusters of small leaves. It really takes an expert, however, to be certain of the diagnosis, so that it is best to send samples of suspected leaves to your state experiment station.

Correction may be accomplished by the use of galvanized glazing points or delayed dormant sprays of zinc sulfate—20 pounds to 100 gallons of water. After-harvest sprays have been successful on pears at the rate of 5 pounds of zinc sulfate in 100 gallons of water. There is still much to be learned, and the first evidences of zinc deficiency are so small as to make it seem probable that the symptoms and the controls will be worked out before this trouble has become of any widespread significance. Keep posted and you will probably have information before the trouble catches up with you, if it ever does.

HICKORY NUTS

Where can I purchase hickory nuts?—*Minnesota.*

Hickory nuts are available from R. L. Harman, Wellsville, Pa., and Clarence Wolford, Port Byron, N. Y.

DEER REPELLENT

Some time ago an article and advertisements appeared in AMERICAN FRUIT GROWER concerning a new deer repellent for young apple trees. Can you give me the names and addresses of the manufacturers?—*California.*

The article you refer to appeared in the March, 1954, issue. The new type of repellent, containing bone tar oil, can be obtained from Neochem Products Co., Inc., Neosho, Mo., and the State College Laboratories, Inc., Box 492, State College, Pa.

GRAFTING WAX

Where can I get some grafting wax or compound for grafting of fruit trees?—*Ohio.*

Try A. M. Leonard & Son, Piqua, Ohio.

Bailey blackberry. Photo by Robert Wesselman

BLACKBERRY COMEBACK?

New varieties may herald blackberry revival in East

BLACKBERRIES are rarely grown in New York and other eastern states today. They were once a profitable crop, with 2,000 acres being grown in New York alone.

The disappearance of the blackberry was brought about in part by the disappearance of good varieties from the nurseries.

The tarnished plant bug, too, is an important cause of failure of blackberry fruits to develop normally. The insect feeds on the flowers and injures them so that only a few, or none, of the drupelets develop.

The discovery that DDT will give almost complete control of the plant bug eliminates this trouble. It should be applied to the plants just before the first flowers open, using it at the rate of two pounds of the wettable powder in 100 gallons of water.

The introduction of **Bailey** and **Hedrick** blackberries makes available two good varieties for commercial culture and the home garden. Plants of the true **Eldorado,** the best of the standard varieties, are still in existence and should be made available by nurseries. The New York State Agricultural Experiment Station expects to introduce new and better varieties from time to time.

For Bulletin No. 764 describing the Bailey and Hedrick blackberries in detail, write to the New York State Agricultural Experiment Station, Geneva, N. Y.

With good varieties available now, and with DDT to control the tarnished plant bug, there is reason to believe that a commercial blackberry industry can be re-established in New York and adjoining states.—*G. L. Slate, N.Y. Exp. Sta., Geneva.*

Scab control is

NOT ENOUGH

Spray

Du Pont Fermate®

Ferbam Fungicide

for all these extra benefits

1. Protects against MORE diseases. No other fungicide gives protection against so many diseases! Besides outstanding scab control, "Fermate" gives excellent protection against cedar rust, sooty blotch, Brooks spot, bitter rot and many other diseases.

2. Gives better finish. Though "Fermate" is tough on diseases, a straight "Fermate" program is fine for finish of red varieties such as Red Delicious, Wealthy, Rome, McIntosh, York, Cortland, Winesap, Northern Spies and others.

3. Increases yields, orchard vigor. The long-use history of "Fermate" has proved its beneficial effect on general orchard vigor through higher yields, year after year.

4. Has low use cost. Experiment-station records show "Fermate" gives you more for your money because it gives higher yields of high-quality fruit.

For free illustrated booklet on how "Fermate" can help you profit more from your orchard, write Du Pont, Grasselli Chemicals Dept., Room D-4032 Wilmington, Del. In Canada—Du Pont Company of Canada Limited, Box 660, Montreal, Canada.

On all chemicals always follow directions for application. Where warning or caution statements on use of product are given, read them carefully.

DU PONT
REG. U. S. PAT. OFF.

Fermate®
Fungicide

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

TC

DESIGN For Plant Nutrition

Tennessee Corporation, leading supplier of trace minerals to the nation's growers, announces two additional products for improved plant nutrition.

NU-MANESE
(Manganous Oxide)
For soil application, for use in mixed fertilizer or for direct spray or dust application.

NU-IRON
For correction of Chlorosis resulting from iron deficiencies by spray or dust application to the plant.

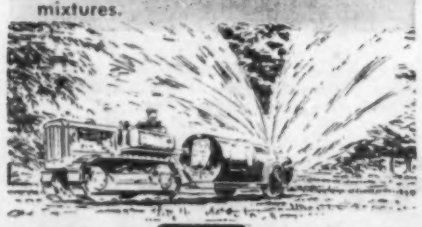
The above supplements our widely accepted agricultural chemicals.

NU-M | **NU-Z**

TRI-BASIC COPPER SULFATE | **COP-O-ZINK**

ES-MIN-EL Spray or Dust | **ES-MIN-EL** For Soil Application

DUST MIXERS!
Tennessee's NU-M, NU-Z, NU-IRON and TRI-BASIC Copper Sulfate are especially suited to be used in preparing nutritional sprays and dust mixtures.



TENNESSEE TC CORPORATION

617-629 Grant Building, Atlanta, Ga.

WINDFALLS

It is said that Isaac Newton while sitting under an apple tree was struck on the head by a falling apple. Thus he conceived the great truth of his Law of Gravitation.

By HENRY BAILEY STEVENS

Memories of a Childhood Orchard WILMA CHAPMAN of Pasadena, Texas, remembers the orchard which her grandfather planted a century ago near Ashley, DeKalb County, Indiana. At 17 years of age he walked there from eastern Ohio and took up a 120-acre farm, paying $1.25 per acre.

"We had apples to eat all year, early red and yellow streaked Harvests, apple dumplings which cooked perfectly wrapped in blankets of delicious pastry, Pippins, Snows, Maiden Blush, Grimes Golden, Northern Spies, which we kept in large bins in the cellar and ate winter nights around the coal burner, Russets which we buried in a straw-lined pit and dug after they had mellowed.

"This succession kept till time for the harvests to ripen the next year. With our collie, we children romped in the orchard grass and each of us had a favorite perch in a tree.

"I believe the abundance of fruit was largely responsible for the splendid health of our family. The orchard flourished for 70 years. I wish we had had Grandpa graft these varieties on new rootstock. There would still be a nice orchard instead of just a happy childhood memory."

Her brother still lives on the farm, whose history reminds us of that earlier John Chapman, the original Johnny Appleseed, who roamed in the Ohio-Indiana country with his legendary bags of apple seeds "in the days of President Washington."

Of a Paradise Sweet MRS. JAMES NICHOLS of Springfield, Ore., remembers the one forlorn apple tree remaining on the logged-off land where she and her husband and two daughters built a home 30 years ago. "It was a Paradise Sweet and well named. It had put up a brave struggle with all the odds against it. Cattle and deer had pulled down and eaten all the branches in reach; bear had climbed up and broken out most of the top branches; woodpeckers had punctured the bark full of holes; and our hogs stripped off the remaining bark.

"But this wasn't the end, just the beginning. Back in my mind was stored the fact that *sometimes* apple branches can be rooted. In late November we cut off several branches and covered them with loose dirt in a trench with just a few inches of the tips showing. Come spring, and we had five well rooted little trees.

"I was encouraged to experiment further and took up several seedlings and grafted them with scions from our neighbor's trees. When we moved to a new home, there was a nice family orchard to prove what my mother used to say: 'The fool didn't know it couldn't be done, so she went ahead and did it.'

"This year we harvested our first crop of Paradise Sweets from a watersprout which we moved with us five years ago. I plan to prove to my own satisfaction what characteristics, if any, a graft can receive from the sap of the rootstock by grafting the Sweet on a Waxen."

Of Shade and Revery AFTER 40 years as an orchardist W. E. Nelson of Santa Cruz, Calif., found himself engaged in dairying on a farm devoid of trees. "How I loathed those bare fields with the sun beating down on my head like a physician's heating lamp! With a spirit of covetousness I would look across the fence to my neighbor's stately rows of shady orchard. I yearned to go back to those earlier days when I used dreamily to guide the tractor up and down cool avenues, where each tree seemed to speak a comforting message.

"There is a certain affinity between trees and man. They inspire us with noble thoughts as we behold them lifting their branches in an attitude of worship to the Creator."

Now Mr. Nelson is back home in an orchard, and when he sees a farmer toiling in an open field, feels pity.

Glads in an Ancient Setting A GLADIOLUS garden in an old abandoned orchard has been the delight of Rev. Edgar B. Rohrbach of Mountain View, N. J. Among the broken, wind-beaten trees, whose life cycle is yet unfinished, he grows Chartreuse, Bright Angel, Waynewood (winner of a New Jersey seedling award) and pastel Mid-Century. At the end of a row stands an old Russet apple with limbs untrimmed but with fruit still unsurpassed. A Winesap, Baldwins, Black Tartarian cherries and several sturdy Kieffer pears supply shade and fruit. "Soon to be a thing of the past," he regrets. "A bull-dozer is about to uproot this treasure to make way for modern housing."

A Prize to One in Defeat "THE daily inspection of the orchard for rabbit damage has been completed again," writes Mrs. Mildred S. Zache of West Bend, Wis. "There has been snow, but so far the bunny diet has not required any fruit-tree bark. But I am saddened by the pruning job on the plums and the poor development of the apple trees. Every week there comes a letter from my husband in the State Hospital with instructions for me in regard to the trees. They were his life for eight years before he became too ill to cope with life's situations. The appearance of some of the trees is a clear indication of his condition.

"As I walked up and down the rows, I remembered the rainy day when we planted the first ones and had to move the second row because of an error in measuring. A few places have had a new tree every year. How well I recall the thrill of the first apples and our joy in the first Bartlett and Lincoln pears, our pride in the grapes and plums! And our dismay where an overdose of bone meal or wood ashes or compost had done more harm than good!

"Altogether the orchard stands as mute testimony to the efforts of a troubled man to provide for his children. Not all success is measurable in money. Who knows the value to himself of any man's work?"

Who indeed? But we are moved at any rate to award the ten-dollar windfall this month to Mrs. Zache.

Address your Windfalls letters and contributions to Henry Bailey Stevens, AMERICAN FRUIT GROWER, Willoughby, Ohio.

BESIDES stopping curculio damage...

Du Pont Marlate®

Methoxychlor Insecticide

also controls other insects, helps give fine fruit finish

In addition to its excellent control of curculio, "Marlate" methoxychlor contributes to fine finish. It doesn't cause russeting, even on sensitive varieties. It's compatible with commonly used fungicides.

With "Marlate" you'll control codling moth and fruit tree leaf roller if they are present with curculio. In later sprays, "Marlate" stops sawfly and apple maggot . . ."Marlate" is ideal for this close-to-harvest use because it doesn't present a residue problem.

On all chemicals always follow directions for application. Where warning or caution statements on use of product are given, read them carefully.

See your dealer today for

DU PONT **Marlate® 50**

REG. U. S. PAT. OFF.

Methoxychlor Insecticide

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

Snug, Dry Protection from Spraying Chemicals!

Fine spray can creep in, unless your clothing is built to shut it out. "U. S." offers you the best possible protection. Specially developed Neoprene coating resists acids, oils and other harmful chemicals. Vulcanized watertight seams. Cut for roomy comfort and long wear.

U. S. PEERLESS NEOPRENE SUIT

- Neoprene coating outside, inside
- resists acids, oils
- corduroy-tip collar
- full-length jacket
- rust-resistant ball and socket fasteners
- bib-front overalls
- adjustable suspenders
- cut-off band permits shortening without curling or raveling
- available in black, yellow or olive drab

U. S. NOBBY HAT

- reinforced watershed brim
- cemented seams
- completely waterproof
- eyelet ventilation

NEOPRENE KWIK ARCTIC BOOTS

- cleated, non-skid sole
- slide fastener
- net lined

SOLD ONLY THROUGH INDUSTRIAL AND RETAIL STORES

U. S. INDUSTRIAL RAYNSTERS®

U. S. ROYAL RUBBER FOOTWEAR

US RUBBER

UNITED STATES RUBBER COMPANY

ROCKEFELLER CENTER • NEW YORK

Oklahoma grower shows his neighbors how to make

Blackberries Pay Off!

By GEORGE W. PHINNEY

NINE years ago Isaac W. Wallis planted 29 acres of sandy Oklahoma upland to blackberries. The third-year crop paid for his plants and land, and left a neat little sum to put in the bank.

Wallis' success was hot news in his community of McCloud. Before he began his large-scale berry farm, some of his neighbors had experimented with small patches of blackberries which they sold at the Farmers' Market in near-by Oklahoma City. No one had ventured into commercial blackberry growing, though. Erosion was a problem around McCloud, and the hot, dry Oklahoma summers seemed more suited to cotton than to berries.

Today blackberries are big business in McCloud, with several hundred acres planted to the fruit. The McCloud Blackberry Growers Association, of which Wallis is president, boasts 100 per cent membership of local growers.

What was the success secret that Wallis passed on to his neighbors? Take blackberry growing as seriously as you take the growing of cotton and corn! Use contour planting to combat erosion, take care when you cultivate, and don't be afraid to prune.

Blackjack Land

When Wallis chose a berry site, he followed an old axiom among Oklahoma blackberry growers—that blackberries will thrive anywhere that blackjack trees grow. His berry farm is surrounded by a dense growth of blackjack trees.

He licked the erosion problem by contour planting and terracing his land to hold all possible moisture. He plowed deep, setting his plow at 18 inches, to reach the subsoil. He set the plants 3 feet apart in rows 12 feet wide.

To further prevent wash and erosion and to decrease heat and the sun's reflection, he sets out small patches of Bermuda grass between the rows. This grass makes fine pasture for his cattle after the picking season is over, and on until the first of the year.

The very first year, he began the practice of keeping the middles mulched and keeping down weeds. He's continued to do this every year.

Wallis applies a 5-10-5 commercial fertilizer every other year, using

200 pounds to the acre. So far the plants and berries have been insect and disease-resistant, thus eliminating the time and expense of spraying.

Wallis has found the Lawton to be a hardy, prolific berry, larger and with fewer seeds than the Donaldson and other varieties he's tried.

Reverse Discing

Just before picking, he goes into the field with a disc harrow, pulling dirt away from the plants by reversing the usual discing method. This keeps the ground in condition to hold moisture, and makes a clean field for the pickers to work in.

Picking begins around June 1 and lasts about 30 days. In a good year Wallis gets 4,800 quarts to the acre, in an average year between 3,200 and 3,600 quarts.

He employes 60 to 75 pickers, paying them 6 cents per quart. About 1,200 to 1,400 quarts are harvested each day. These are sold through the association for $7.50 to $8 per 24-quart crate, or about 32 cents a quart. Buyers are waiting at the shed for every crate produced, so Wallis has no hauling expense.

Pruning is begun immediately after the harvest. He has a 48-inch maneuverable cycle attached to his tractor, with which he can trim nearly 10 acres a day. Old canes are cut back to the ground and new shoots topped waist-high with the aid of long-handled clip shears. This insures sturdy growth and keeps briars off the ground, making picking faster and easier. A tractor-pulled sulky rake cleans dead canes and prunings from the middle. He then burns these prunings.

Wallis' blackberry field, contour-planted and terraced to prevent erosion of Oklahoma soil.

With care and proper cultivation, correct pruning, and average weather conditions, Wallis expects his plants to produce for 20 years without replacement. THE END

"I've looked at them all, and the Myers rig is tops in concentrate spraying,"

says Richard A. Cubbard
Milton, New York

Economy . . . positive pest and disease control . . . easier handling. These are important reasons why this leading New York State orchardist prefers the Myers Concentrate Sprayer above all others.

Since switching from dilute equipment, his production costs have dropped sharply. This economy can be traced to the savings in time, water and labor that concentrate spraying makes possible.

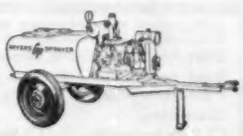
And his fruit is top quality. In speaking of coverage he says, "I obtain better insect and disease control with the Myers Concentrate Sprayer because it provides optimum droplet size and good penetration of tree foliage throughout the year."

He likes the Myers Concentrate rig for its convenience, too. One man can apply any of a wide variety of spray materials with greater ease than was ever possible with dilute equipment that requires several men.

Doesn't this success story suggest some profit-making ideas for you? Write today for the name of your Myers dealer. He will arrange to demonstrate the Concentrate Sprayer in your own orchard.

Myers Concentrate Orchard Sprayer

Myers General-Purpose Sprayer



Myers POWER SPRAYERS
WATER SYSTEMS AND WATER SOFTENERS

THE F. E. MYERS & BRO. CO. • DEPT. A-4, ASHLAND, OHIO

This
FITCHBURG CHIPPER
converts orchard prunings into valuable
LOW COST MULCH

Leading fruit growers have found it really pays in better fruit and better finish to chip their prunings and thinnings, and leave the chips around the base of the trees as a moisture holding mulch.

One well-known grower says:

"Our Fitchburg Chipper is one of the best investments I have ever made, and has already paid for itself. I believe the chip mulch to be far better than hay as it will not burn and will last a lot longer."

For as little as $650 you can get a suitable Fitchburg Chipper for orchard work with the patented Fitchburg Safety Spring so essential to smooth operation.

FREE FOLDER gives you the facts!

Tells how to use low-cost wood chips on your farm. Gives ways to earn extra money, technical data for the Fitchburg Chipper, model types, specifications. Send for your folder today!

FITCHBURG ENGINEERING CORPORATION
Dept. AF-45, Fitchburg, Massachusetts
Send me the new Fitchburg Chipper Folder. I am interested in Wood Chips for:
Please Check
☐ Fruit tree mulch ☐ Garden or berry mulch ☐ Soil enrichment
☐ Stable bedding ☐ Poultry litter ☐ Farm roads, field lanes
Name_____
Address_____
Town_____ State_____

NPC MEETS WITH PENN

Growers learn marketing tricks to increase consumer appeal of peaches

By R. T. MEISTER
Editor

A FRUIT meeting of unusual interest was held in York, Pa., in February when the National Peach Council met jointly with the State Horticultural Association of Pennsylvania. It was the regular spring meeting of the peach council brought to Pennsylvania by President J. Bentz Kauffman of York.

Delegates from peach-producing states estimated the coming crop at 63,546,000 bushels. This would be nearly 4 million bushels more than last year but 2 million bushels under the 1943-52 average. Of this total, 21 million bushels are California clings earmarked for the canners.

The feeling was that the crop presents no unusual marketing problems, barring unforeseen weather disturbances, if a good quality ripe peach is put in the hands of the consumer. How to grow and market to accomplish this purpose was analyzed for the remainder of the meeting.

Pennsylvania growers joined in with peach growers for many sessions but met separately on apple, cherry, and small-fruit problems.

Supermarket Merchandising

Max Brunk of Cornell University gave some helpful hints to peach growers on how to make greater sales in supermarkets. It was Brunk's work that stimulated the change to 5-pound polyethylene bags for apples displayed in combination with bulk that has revolutionized apple handling methods.

Brunk reported that peach sales could be improved by combining bulk displays of peaches with 6-pound baskets. He reported peach sales 50 per cent greater than bulk alone. The 6-pound unit was put up in 4-quart baskets priced at 49 cents.

A display of bulk in combination with 12-pound baskets gave a 30 per cent increase, and bulk with ½-bushel baskets increased sales over bulk alone by 39 per cent.

Very happy indeed are Curt Eckert (left), Belleville, Ill., newly elected president of National Peach Council, and Bentz Kaufman, of York, Pa., past president, as they pose for the cameraman with Pennsylvania's 1954-55 peach dessert queen, Nancy Marstellar, of Stewartstown, York County.

Brunk said that he has learned six principles of fruit merchandising in supermarkets which are the basis of much of his work. These are:

1) Package produce in consumer-sized units for convenience and ease of handling.

2) Use relatively large pricing units, because shoppers tend to buy in the amount for which the price is quoted.

3) Make the customer feel that she's getting something extra when she buys by the package.

4) Aim promotion of new packages or products directly at the consumer rather than at the wholesaler, jobber and retailer.

5) The grower's concept of quality, and the shopper's, are not always the same.

6) Once a competitive advantage is gained through improved merchandising, it cannot be maintained for long.

Irrigation Experiences

An interesting panel on irrigation brought out experiences of growers.

(*Continued on page* 26)

PRIZE-WINNER

The fresh peach pie made by Pennsylvania's Peach Dessert Queen, Nancy Marstellar, was judged the best in a contest sponsored last fall by the woman's auxiliary of the State Horticultural Association of Pennsylvania, the National Peach Council, and the Pennsylvania Home Extension Service. Young ladies from six counties, primarily 4-H Club girls, took part in the contest.

Nancy's prize-winning recipe, which fruit growers' wives will want to try and which fruit growers themselves will want to include in their peach baskets at harvesttime in 1955, is as follows:

Fresh Peach Chiffon Pie

¾ cup sugar
1½ cups chopped fresh peaches
1 teaspoon unflavored gelatine
¼ cup water
½ cup hot water
1 tablespoon lemon juice
½ teaspoon salt
½ cup heavy cream, whipped
12 graham crackers

Crush graham crackers. To 1½ cups crumbs add ⅓ cup sugar and ½ cup melted butter. Mix well and press into 9-inch pie plate. Chill.

Add sugar to peaches. Let stand. Soften gelatine in cold water, dissolve in hot water; cool. Add peach mixture, lemon juice, and salt. Chill until almost set. Fold in whipped cream. Pour into graham cracker crust. Chill thoroughly. Serves 6.

The only fungicide that gives you the highest quality fruit at the lowest cost

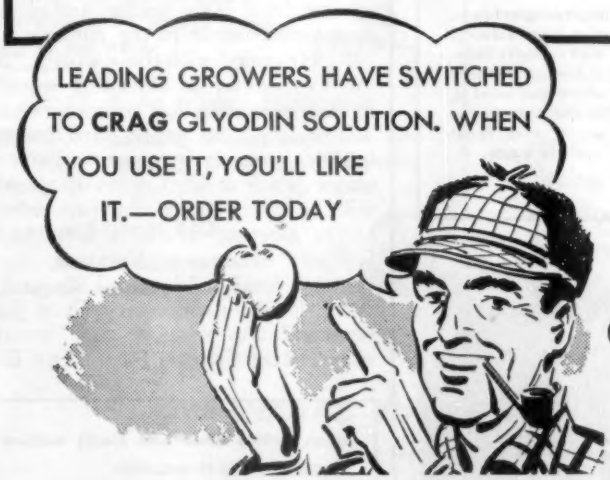
... CRAG Fruit Fungicide 341

(A Glyodin Solution)

CRAG glyodin solution is a proven fungicide. It has helped growers produce more profitable crops of better quality fruit at a lower cost per bushel—and it can do the same for you!

***Here's what* CRAG 341 *gives you*—**

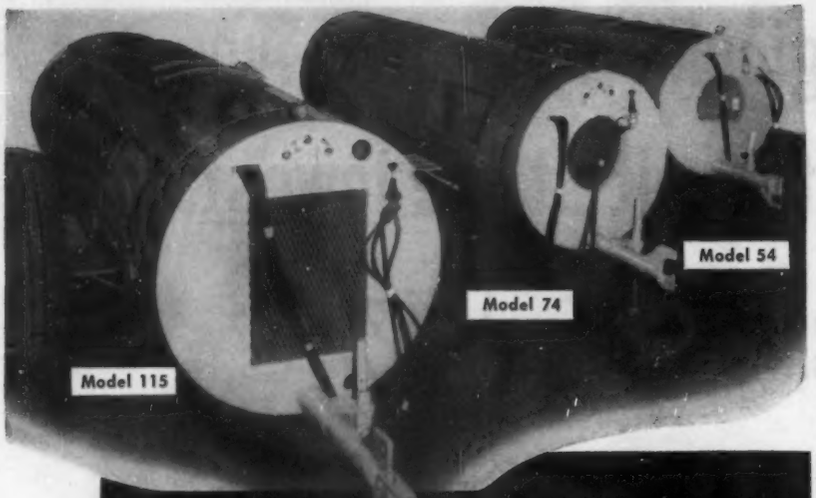
* **Outstanding Scab Control—**
  even under the worst conditions.
* **Flexibility—**
  When you can't outguess the weather, use long-lasting CRAG glyodin solution plus the after-rain control of liquid phenyl mercury.
* **Red Mite Suppression—**
  CRAG glyodin solution reduces need for, and cost of, red mite sprays.
* **Convenience—**
  An "easy to measure" liquid for dilute or concentrate spraying.
* **Higher Yields—**
  from healthier trees.
* **Quality Fruit—**
  You get outstanding color and finish.



PROTECT FOR PROFIT
with
CRAG
Trade-Mark
AGRICULTURAL CHEMICALS

CARBIDE AND CARBON CHEMICALS COMPANY
A Division of Union Carbide and Carbon Corporation
30 East 42nd Street UCC New York 17, N. Y.

"Crag" is a registered trade-mark of Union Carbide and Carbon Corporation.



NEW BROADER LINE OF CARDOX AQUA-JET SPRAYERS

THE SPRAYER OWNERS ENDORSE

Now you can enjoy AQUA-JET'S better performance on any spraying job!

From the powerful new CARDOX Aqua-Jet 115, built for the toughest spraying jobs, to the famous Model 54 that introduced fruit growers to low-cost, effective Aqua-Jet spraying, there's now a CARDOX Aqua-Jet for every spraying job. For orchards and trees of any size!

Differing in tank, engine, pump and blower capacities, all CARDOX Aqua-Jet Sprayers provide this unique combination of advantages you must have to do your job best.

1. **PROVEN AQUA-JET HEADS** Adjustable, impinging jets that give any desired pattern with lowest pressure drop.
2. **PROVEN MECHANICAL AGITATION** Spray material is always thoroughly mixed—never too "strong" or too "weak".
3. **PROVEN HIGH PRESSURE PUMP** Gives you the powerful "punch" needed for long range projection and complete coverage.

Before you invest in any sprayer, it will pay you to find out what CARDOX Aqua-Jets offer you—in clean crops, easy spraying—in labor and materials savings. Equally effective with bulk, semi-concentrates, or concentrates. Whatever your spraying needs, see your CARDOX Dealer—or write for his name and free bulletins.

AQUA-JET HEADS

Impinging jet heads, plus high velocity, high capacity blower fan put the spray where you want it, in the pattern you want, with least possible waste.

CARDOX CORPORATION

BELL BUILDING • CHICAGO 1, ILLINOIS

SALES OFFICES: CLEVELAND, OHIO 13233 Euclid Ave. · OAKLAND, CAL. 1118 Fifth Ave. · SAN JOSE, CAL. 1763 Monterey Rd. · YAKIMA, WASH. 3902 Tieton Drive · RICHMOND, VA. Thom Rd., Westham Ridge · KINGSTON, N. Y. 224 Fair Street

Song of an Orchardist

IT'S A GREAT LIFE

By Albert L. Mason
Albion, N. Y.

Ev'ry day
I gotta spray!
Darn it all!
Life is hell!
Guess I'll sell
Farm 'n' all!

Out our way,
Rained all May;
Got stuck in ruts!
Couldn't plant;
Just rave 'n' rant!
Ain't farmers nuts?

Raisin' fruit
'N' bugs to boot
Makes me frown.
Keepin' tab
On apple scab
Gets me down.

You can't win;
Sprayed too thin,
Killed the bees!
Hired man
Burnt his hand,
Scorched the trees!

June, July,
Prob'ly I
Can't keep cool.
Sulfur burn;
Live 'n' learn;
I'm a fool!

Sprayed with oil,
Sweat 'n' toil;
Still got mites!
You know what
Bugs have got?
Appetites!

Used a mask,
One hip flask;
Stayed quite sober!
Bugs are high!
So am I,
Come October!

Life is rough;
Guess I'm tough;
Still can take it!
Fruit growin', "Bud,"
Gets in your blood!
You can't shake it!

NPC MEETS

(*Continued from page* 24)

Harvey Nye, of St. Joseph, Mich., reported that irrigation has taught him to use larger amounts of fertilizer, more spray material, and more labor to produce larger crops. He said that he feels that apples, peaches, and pears can use 50 inches of water a year. Since the average rainfall in Michigan is 35 to 40 inches, the difference is made up by irrigation.

He reported that he used to think of irrigation as a means to save a crop, but now he is using it as a production practice that will make a good crop better and at the same time help make more buds for the next year.

R. L. Williams, of Porterville, Calif., told how adequate water is his insurance of a crop. It can be used against frost in the spring, and against heat and drought in the summer and fall. He ended with these words, "Remember, water is our most valuable natural resource. Let us conserve it."

The latest on peach varieties was told to growers by experts from all major peach areas. Copies of all talks will be available in the proceedings of the meeting, available from M. J. Dorsey, Secretary, National Peach Council, 1502 S. Lincoln, Urbana, Ill., and J. U. Ruef, Secretary, State Horticultural Association of Pennsylvania, State College, Pa. THE END

When writing advertisers please mention AMERICAN FRUIT GROWER.

RIGHT NOW...

GET IT WITH THE FERGUSON 35

EXCLUSIVE 4-WAY WORK CONTROL
lets you farm more, work less

1. QUADRAMATIC CONTROL
for Lift control, double-acting Draft control, Response control and Position control.

2. DUAL-RANGE TRANSMISSION
provides six forward speeds; two reverse speeds; fits tractor speed exactly to the work.

3. "2-STAGE" CLUTCHING
controls tractor movement and live PTO with a single foot pedal.

4. VARIABLE-DRIVE PTO
provides drives in ratio to tractor ground speed, or to tractor engine speed.

You've heard of the brilliant new Ferguson "35", of course. Now try it yourself . . . on your own farm. Get the feel, at first hand, of exclusive 4-Way Work Control at work *for you!*

And that's not the whole new story of this years-ahead tractor by any means. The "35" also gives you other advanced features such as High-Torque Engine . . . Recirculating Ball-Nut Steering . . . Sight-Glance Tractormeter . . . Compensating Overload Release. *Plus* many other Ferguson benefits.

Get set for a new appreciation of how flexible a tractor can be in all-around performance. How handy its fingertip operation. How selective and wide-ranging its controls. Seeing is believing . . . but a *tryout*, in person, is even more convincing. Call your Ferguson Dealer now to arrange just such a demonstration.

Ferguson, Racine, Wis.

go years ahead / ***GO* FERGUSON**

Here are 4 of the 8 . . . the

AIR-AGE 8

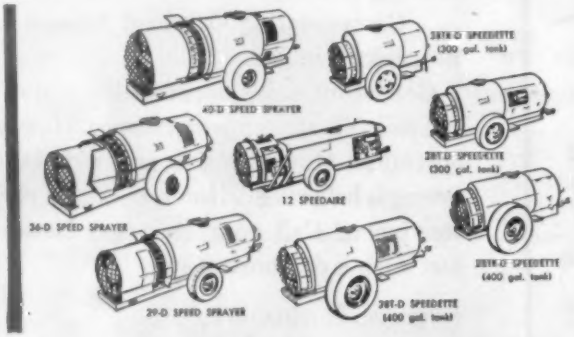
4 JOHN BEAN SPEEDETTES NOW BRING ECONOMICAL AIR SPRAYING TO EVERY MEDIUM SIZED ORCHARD

Owners of medium-size orchards or groves can save time, save labor and save spray materials with a proven John Bean Speedette air sprayer — and grow better fruit more profitably!

Spraying is a fast, one-man operation with a Speedette. You spray "on time" when it's needed most — put protection where you want it with accurate "zoned" spray patterns and simplified, easy operating controls. You get through-the-tree penetration and thorough top-to-bottom coverage that makes your spraying fully effective. And whether you spray concentrate or semi-concentrate to avoid run-off and drip, or spray dilute, your materials go further with a Speedette because distribution is uniform and particle size is closely controlled.

The range of four Speedette models provides either 300 or 400-gallon capacities and either engine power or tractor power take-off. See the Speedette of your choice in action. Ask your John Bean dealer for a demonstration.

the JOHN BEAN AIR-AGE 8 for '55



. . . EXACTLY THE RIGHT AIR SPRAYER FOR EVERY ORCHARD

Write today for the NEW John Bean Orchard Sprayer catalog.

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

John BEAN DIVISION OF FOOD MACHINERY and CHEMICAL CORP.

LANSING 4, MICHIGAN • SAN JOSE, CALIFORNIA

Well-managed, properly fertilized strawberries.

FERTILIZE Your Berries

Help your plants produce high yields by feeding them properly

By JAMES M. BEATTIE

Ohio Agricultural Experiment Station

ACCORDING to the latest census figures, there are 161,000 acres in the United States devoted to the production of berries. In many instances, the failure of berry growers to obtain highest yields has been due to improper or inadequate fertilization practice.

These fruits require all of the 16 chemical elements now recognized as essential for plant growth. Of these 16 elements, carbon is supplied from the air, hydrogen and oxygen largely from water, and the remainder must be supplied by the soil, either as naturally occurring constituents of the soil or through the addition of natural or synthetic fertilizer materials. Fortunately, many of our soils supply adequate amounts of the majority of these essential plant elements. It is the ones which are not supplied in sufficiently large amounts with which the grower is concerned.

Proper fertilization is not the only factor involved in attaining high production. The selection of good soil and site, the choice of good varieties, control of insects and diseases, good cultural practices, and adequate moisture supply all contribute equally to success in growing these crops.

In the following paragraphs, the fertilizer requirements for strawberries, bramble fruits, blueberries, and currants and gooseberries are discussed individually.

Fertilizers for Strawberries

Considerable difference of opinion exists as to the need for applying fertilizers to strawberries grown on fertile soils. However, when the

(*Continued on page* 30)

Better Fruit with Less Work

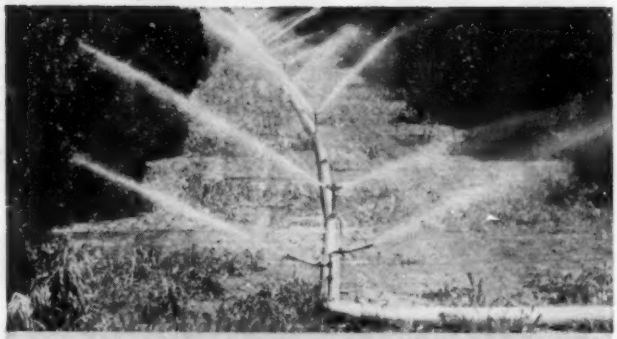
Arcadian®

UREA 45

FERTILIZER

Any way you apply it, ARCADIAN UREA 45, the 45% Urea Nitrogen Fertilizer saves labor and cuts application costs. It speeds the job of supplying nitrogen needed for good growth, heavy bloom and set, and high yields of top-quality fruit.

Spread UREA 45 on the ground fast by machine or by hand. Every easy-lifting 80-pound bag of free-flowing, concentrated ARCADIAN UREA 45 supplies 36 pounds of nitrogen—two or three times as much as ordinary nitrogen materials provide. You have fewer bags to lift and get more trees evenly fertilized per day.



Apply UREA 45 in irrigation water and let water do the work of spreading it. ARCADIAN UREA 45 penetrates everywhere the water goes, then fixes on soil particles ready to feed roots steadily and well. Because UREA 45 penetrates to the roots, it feeds crops equally well when used in furrow, bed and underground pipe irrigation, as well as in flood and sprinkler systems.

Place your order now for this work-saving, versatile new nitrogen. Write us and we'll send you free literature and tell you who sells ARCADIAN UREA 45 in your vicinity.

Arcadian®

PRODUCTS FOR PROFITABLE FARMING

UREA 45 Fertilizer—*45% Nitrogen Pellets*
Nitrogen Solutions—*Pressure and Non-Pressure types*
American Nitrate of Soda—*Improved Granular*
A-N-L® Nitrogen Fertilizer—*Pelleted*
Sulphate of Ammonia—*Dry Crystalline*

NITROGEN DIVISION Allied Chemical & Dye Corporation
New York 6, N. Y. • Ironton, Ohio • Omaha 7, Neb.
Indianapolis 20, Ind. • Hopewell, Va. • Columbia 1, S. C.
Atlanta 3, Ga. • San Francisco 3, Cal. • Los Angeles 15, Cal.

NITROGEN DIVISION ALLIED CHEMICAL

UNTREATED TREATED

Berry Growers

cut your weeding costs

with CRAG Trade-Mark HERBICIDE-1

Growers have found that they can save as much as 75% of their weeding labor when they use CRAG Herbicide-1 for weed control in strawberries and raspberries.

CRAG Herbicide-1 is rapidly becoming the accepted weed control material in the non-irrigated strawberry growing areas. For five years it has given excellent weed control in both strawberries and raspberries with exceptional crop safety.

CRAG Herbicide-1 kills weed seeds as they sprout. It will not hurt the leaves of the berry plants because it does not become a weed seed killer until after it hits the soil.

CRAG Herbicide-1 has helped thousands of berry growers cut their weeding costs and it can do the same for you—use it and see!

CRAG Trade-Mark HERBICIDE-1 is a product of

CARBIDE AND CARBON CHEMICALS COMPANY

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

"Crag" is a registered trade-mark of Union Carbide and Carbon Corporation.

FERTILIZE BERRIES

(*Continued from page* 28)

plants lack vigor and show specific deficiency symptoms, fertilizer should be applied. This may be done about 6 weeks following planting time or after the fruit season while runners are being formed.

When nitrogen only is needed, it may be side-dressed at the rate of 200 pounds per acre of a 20 per cent nitrogen fertilizer or its equivalent. On soils also low in phosphorus and potassium as revealed by soil test, plant tissue test, or by plant symptoms, a complete fertilizer such as a 10-10-10 should be applied as a side dressing at 400 pounds per acre.

On certain low phosphorus soils, benefits have been realized from the application of 200 pounds per acre of superphosphate fertilizer applied during the late winter to the surface of the mulch material used to protect the planting from extreme cold and from alternate freezing and thawing.

It is suggested that nitrogen fertilizer not be applied immediately preceding the picking season as it may cause the fruit to be too soft to withstand handling.

Bramble Fruits

This group includes red, purple, and black raspberries, blackberries, dewberries, and loganberries. Much of the experimental evidence to date indicates that these fruits respond well to nitrogen at the rate of 50 pounds of *actual* nitrogen per acre per year. This amount could be supplied as 150 pounds of ammonium nitrate, 250 pounds of sulfate of ammonia, or equivalent amounts of other nitrogen fertilizers.

For the brambles which are grown in hedge row, the fertilizer should be applied in early spring in a band 2 to 3 feet wide in the row. For those kinds grown under the hill system, a 20 per cent nitrogen fertilizer applied at the rate of 3 ounces per plant is adequate. For soils low in phosphorus and potassium as well, a 10-10-10 fertilizer may be substituted, applied at the rate of 450 to 500 pounds per acre or 6 ounces per plant.

Blueberries

Blueberries have somewhat exacting requirements insofar as soil reaction is concerned. This species does best in soils with a pH of from 4.5 to 5.0. Because of the acid soil requirement and because the blueberry responds well to the ammonia form of nitrogen, it is recommended that sulfate of ammonia be used as a source of nitrogen. This form of nitrogen has a slight acidifying effect on the soil and helps maintain soil pH at a desirable level.

When nitrogen only is needed, an application of 1 ounce per plant of sulfate of ammonia is recommended early in the spring of the second year. This amount may be increased by ½ ounce each year thereafter until a total of 4 ounces per plant is used. The fertilizer is spread in an even band around the individual plant extending to a point slightly beyond the spread of the branches.

In many instances, blueberries respond well to complete fertilizers. In such cases 2 ounces per plant of a 10-10-10 or similar commercial fertilizer is applied in the spring of the second year and the amount increased by 1 ounce per year until 8 ounces per plant is applied.

On certain upland soils, particularly if the pH is above 5.5, blueberries develop a severe yellowing of the foliage which has been associated with iron deficiency. This yellowing may be corrected by the application of ¼ pound per plant of an iron chelate compound.

Currants and Gooseberries

Currants and gooseberries may be fertilized after planting with nitrogen or, on soils low in phosphorus and potassium, with a complete fertilizer such as a 10-10-10. A 20 per cent nitrogen fertilizer or its equivalent may be applied at 1 ounce per plant, while the complete fertilizer should be applied at the rate of 2 ounces per plant in order to furnish the same quantity of nitrogen and an adequate supply of phosphorus and potassium.

In subsequent years the quantity of fertilizer, either nitrogen or complete, should be increased gradually each year until 2 to 3 ounces of 20 per cent nitrogen or 4 to 6 ounces of the complete fertilizer are used. The smaller quantities should be used on the heavier textured and more fertile soils while the higher rates of application should be made on light-textured soils such as the sands and sandy loams. In each case the fertilizer is applied in early spring before growth begins and is put around each plant covering an area slightly larger than the spread of the branches.

Evaluate Response

Because conditions of soil and fertility vary so widely, it is suggested that growers attempt to evaluate the benefits that they might receive from fertilizer application under their own special conditions. This may be easily done by applying fertilizer to a small section of the planting and then making careful observation. Only in this way can the individual grower be sure that fertilizer is paying him in terms of better growth, greater plant stand, and improved yields. THE END

NEW

Here's a handy tractor with 2-plow power low enough to work close under trees, yet with under-clearance for cultivating.

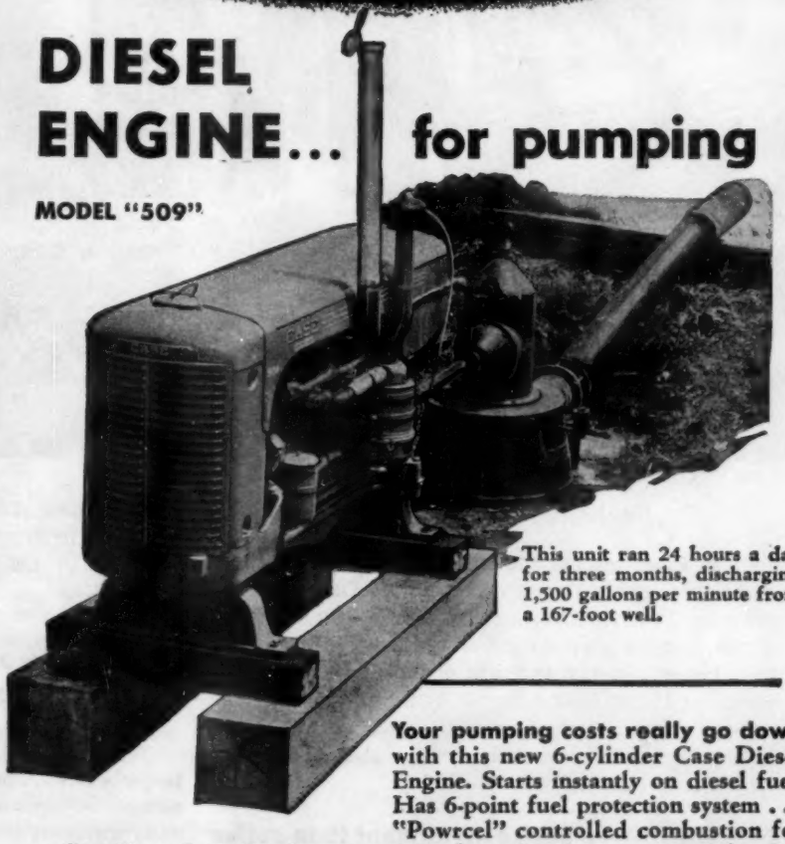
This new Case tractor has everything to fit grove and orchard care: low hood, seat and platform . . . tucked-under exhaust . . . adjustable tread, 44 to 60 inches, front; 45 to 64 inches, rear . . . all-day riding comfort with adjustable Bodyguard® seat . . . shock-free steering, easy-braking . . . 3-point Eagle Hitch for speedy implement hook-up.

Low-Cost Grove Tractor

CASE

DIESEL ENGINE... for pumping

MODEL "509"



This unit ran 24 hours a day for three months, discharging 1,500 gallons per minute from a 167-foot well.

Your pumping costs really go down with this new 6-cylinder Case Diesel Engine. Starts instantly on diesel fuel. Has 6-point fuel protection system . . . "Powrcel" controlled combustion for smooth, quiet power . . . a 7-bearing crankshaft. Automatic low-oil-pressure and high-temperature cut-offs stop engine should something go wrong. Model "509" has 65 H.P. Also four other engines—24 to 61 H.P.

See Your Case Dealer

Ask about the Case Grove and Orchard Tractor and a Case pumping engine to fit your needs. Write for catalogs. J. I. Case Co., Dept. D-135, Racine, Wisc.

There's still time to protect

"Among 1,500,000 ORTHOCIDE-treated apples we found *one* scabby apple"*

Says John E. Rice
Marlboro, Middlesex County, Mass.

*ORTHO does not, of course, claim that every grower will duplicate Mr. Rice's amazing results. However, hundreds upon hundreds of growers report *exceptional* scab control with ORTHOCIDE.

Never had such fine finish

John E. Rice, who has 350 acres of apples in Marlboro, Massachusetts has this to say about his ORTHOCIDE program: "I never had such fine finish on my McIntosh apples, and the color of the fruit was better, too. Neither have I ever had such excellent scab control. We had to grade out 15,000 boxes dropped by the hurricane in '54. Among approximately 1,500,000 apples we found *one* scabby apple. This was such an unusual specimen that we brought it to the house for display!"

ORTHOCIDE—a better investment than sulfur

"I expect to use ORTHOCIDE next year on all my apples," continues Mr. Rice. "A grower must apply *more* pounds of sulfur than of ORTHOCIDE, and since the use of sulfur makes the soil acid, he must consider the expense of bringing in lime to counteract this acidity. There is little difference, actually, in the costs of the two spray programs, but there is considerable difference in favor of ORTHOCIDE when crop returns are counted."

More and more growers report GREATER NET PROFIT WITH ORTHOCIDE and a complete ORTHO program

Larger yields . . . better grade fruit . . . exceptional disease control . . . increased storage life—these are some of the many dividends credited to ORTHOCIDE by growers. This remarkable new fungicide is a top quality formulation of the new chemical, captan, manufactured with exceptionally fine particle sizes and superior wetting and sticking qualities. For *best* results ORTHOCIDE should be used in a complete ORTHO spray program as recommended by your ORTHO Fieldman.

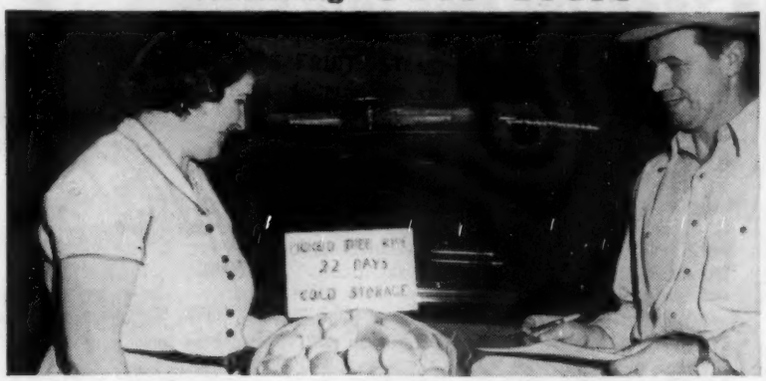
your profits with ORTHOCIDE®

containing CAPTAN

Cherry size & foliage greatly improved

Claude Raymor, Ontario, N.Y.

Thick, lush foliage in late October. Claude Raymor, Ontario, N.Y., points to fine foliage of ORTHOCIDE-treated cherry trees even in late October. Cherry trees in the area that had been sulfur-sprayed were completely defoliated by this time. In '54, Mr. Raymor used ORTHOCIDE on all cherries. Reports cherry size considerably improved.



"Peaches, cherries, apples last twice as long"

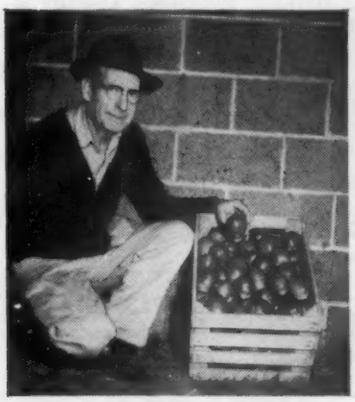
Dot and Lou Schmall, Sodus, N.Y.

Fruit stand operators, Dot & Lou Schmall, Sodus, N.Y., inspect perfect ORTHOCIDE-treated peaches that travelled 3 days in 75° heat after 22 days in cold storage. Report the Schmalls: "Here at our stand, we have found that ORTHOCIDE-treated peaches, cherries and apples are of superior quality and hold up about twice as long as other fruit. ORTHOCIDE-treated fruit looks so much better that it sells about ⅓ faster than fruit tested with other materials."

"Best fungicide I've ever used"

Paul Sullivan, Littleton, Mass.

Paul Sullivan, Littleton, Mass., who farms 80 acres of apples – predominately McIntosh, Red Delicious and Baldwins – gives this case history report: "ORTHOCIDE is the best fungicide I've ever used, barring none. I followed the spray program as suggested by the ORTHO Fieldman and the results were excellent. My crop was clean, and I had the best finish in years. Color was outstanding even on the old-fashioned striped McIntosh."

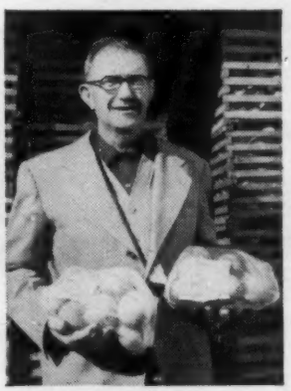


Offered neighbors nickel for every scabby apple they could find

Morris Buerman, Sodus, N.Y.

Harvested what he calls "perfect crop." Morris Buerman, Sodus, N.Y., adopted full ORTHOCIDE program in '54. He reports he didn't believe that a perfect crop could happen, but after examining tree after tree of perfect apples, he made bets with neighbors – offering a nickel for every scabby apple anyone could find. (Not that scab wasn't a problem. Some growers in the area lost 50% of their crop to scab.)

Cherry trees 30% - 40% more luxuriant. Foliage of ORTHOCIDE-treated cherry trees was 30% to 40% heavier than it had ever been with sulfur and other sprays. Moreover, the leaves were twice as big, and cherry size was increased not less than 10%.



"Finest finish I've ever seen on my Golden Delicious"

James B. Lane, Xenia, Ohio

Used complete ORTHOCIDE program. James B. Lane, Xenia, Ohio, experimented with ORTHOCIDE in '53. This led to complete ORTHO spray program in '54. Says Mr. Lane: "The improved foliage of the ORTHOCIDE-treated trees enabled them to withstand a drought that would have caused serious loss in former years with other spray programs. ORTHOCIDE has given me the finest finish that I have ever seen in 33 years of apple growing."

On all chemicals, read directions and cautions before use.

T.M.'S REG. U.S. PAT. OFF.: ORTHO, ORTHOCIDE

Plan your profit-making 1955 ORTHO spray program now. For full information *without obligation* – call your nearest ORTHO Fieldman or nearest ORTHO Office.

CALIFORNIA SPRAY-CHEMICAL Corp.

Executive Offices: Richmond, Calif. • Washington, D.C.

Maumee, Ohio	Goldsboro, N.C.	Fresno, Calif.	Maryland Heights, Mo.
Medina, N.Y.	Portland, Ore.	Orlando, Fla.	Oklahoma City, Okla.
Linden, N.J.	Sacramento, Calif.	Whittier, Calif.	Phoenix, Arizona
Shreveport, La.	San Jose, Calif.	Caldwell, Idaho	

World leader in scientific pest control

ORTHO

SCIENTIFIC PEST CONTROL

WD-45

FEEL THE DIFFERENCE IN TRACTOR AND TOOLS

Alert fruit growers do things differently these days. Anyone who says the old way is good enough hasn't seen an Allis-Chalmers tractor perform.

The dynamic WD-45 with POWER-CRATER engine gives you power to get ahead FAST. Try it . . . work it . . . you'll *know* there's a difference. With its surging high-compression power from regular gasoline, the load-hungry WD-45 tackles the toughest jobs . . . and takes charge.

When the going is tough, the Traction Booster automatically transfers rear-mounted implement weight to drive wheels . . . as needed for traction.

Two-Clutch Control allows power take-off and hydraulic system to operate when tractor is stopped.

Engine power spaces rear wheels. Five-way hydraulic system lifts and lowers implements. SNAP-COUPLER hitches and unhitches implements instantly. A wide variety of tools are designed to take advantage of the tractor's power conveniences.

Take the wheel and get the feel of the WD-45 in action. You'll be driving today's top-performing tractor . . . and the price will save you hundreds of dollars.

Three front-end styles, including wide, adjustable front axle.

Model WD-45 with heavy-duty disc harrow — hydraulically lifted.

These Standard WD-45 features MAKE the difference

- ★ Automatic Traction Booster
- ★ Two-Clutch Power Control
- ★ Power-Shift Wheel Spacing
- ★ SNAP-COUPLER for Quick-Hitch implements
- ★ Complete hydraulic system
- ★ Helical Gear transmission
- ★ Full crop and implement clearance
- ★ Free-Swing, mounted implements, led from a single hitchpoint.

SNAP-COUPLER and POWER-CRATER are Allis-Chalmers trademarks.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

PRUNING BRAMBLES

Summer topping and dormant thinning will pay dividends

PRUNING raspberries and blackberries can be an easy, pleasant job when it's done every year.

Brambles grow either upright or spreading out, and the canes live for two years only. Only second-year canes bear fruit. They should be removed after harvest to prevent the spread of insects and disease. This is done by cutting off two-year-old canes as close as possible to the ground. A valuable tool for this operation is the pruning hook.

Roots continue to live, and in the case of the red raspberry and blackberry, give rise to new canes. For all the brambles, new canes also grow from buds at the bases of old canes.

When brambles are planted in a narrow hedgerow without the use of supporting wires, pruning methods are as follows:

RED RASPBERRIES — Besides the after-harvest removal of old canes, the red raspberry needs an annual dormant pruning just before growth starts in the spring. If left alone, it will produce more berries than it can ever ripen, so it is necessary to thin out the canes. Usually it is best to head them back slightly.

First remove all weak and short canes. Thin out those remaining so that they're spaced about 6 inches apart in the row, or 10 to 12 canes every 4 feet. Then cut back the remaining canes so they stand about 5 feet tall. Removing the tips makes it easier for the plants to hold up a crop without support.

BLACK AND PURPLE RASPBERRIES — These berries have arched canes that root at the tips in the autumn. They need the same dormant and post-harvest pruning as the red raspberry. In addition they are "topped" in early summer. This is done by removing the tips of the shoots.

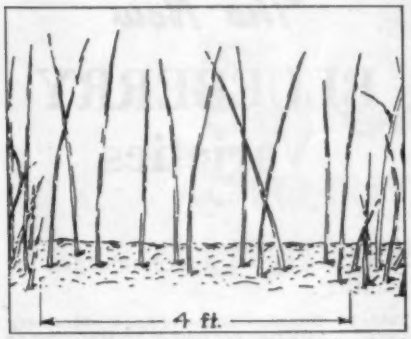
Topping is normally done in May or June, or when the black raspberry plant is 18 to 24 inches high and the purple raspberry is 24 to 30 inches high. Topping checks terminal canes and forces out the side branches. This results in a low, sturdy plant capable of bearing heavy crops.

Just before growth starts in the spring, the annual dormant pruning is done. Little cane thinning is normally required. For black raspberries,

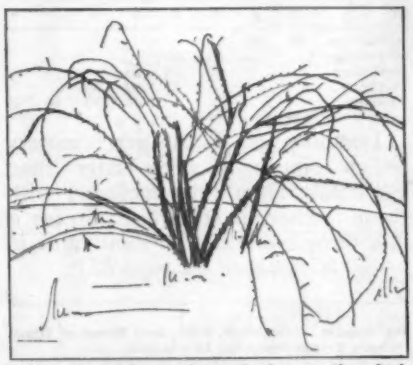
keep all canes over ⅓ inch in diameter; for purples, over ½ inch. At the same time, side branches are shortened to about 12 inches for black raspberries and 18 inches for purples.

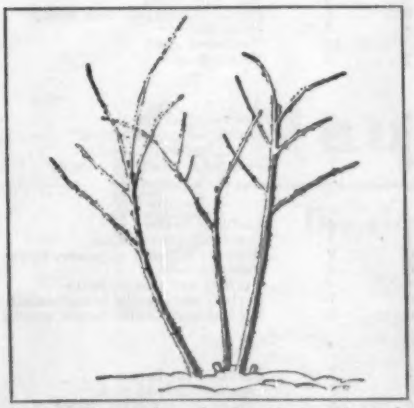
BLACKBERRIES — Training follows the growth habit of the variety planted—either trailing or erect. Trailing varieties may be trained to a trellis; erect may be trained like raspberries. Shoots of erect blackberries are topped at 24 to 30 inches in the summer.

Immediately after harvest, old canes are removed. Just before growth begins in the spring, weak and diseased canes are removed and only healthy, strong canes of ½-inch diameter or more are kept. Laterals are cut back to 12 or 18 inches, depending on the variety. THE END



Raspberry canes are headed back and thinned out to 6 inches apart with 10-12 canes every 4 feet.


Black and purple raspberry bushes as they look before annual dormant pruning in the spring.


After spring pruning, showing black and purple raspberry canes thinned and laterals shortened.

The Crops That Never Stop Growing

With the aid of science and the application of planned dusting and spraying schedules, growers have been consistently raising bigger, healthier crops, better.

Working cooperatively with growers and the industry at large, Niagara can point to many accomplishments that have turned improved weapons against insects and disease.

In Niagara laboratories, never ending research and development has resulted in a steady flow of new and better protective materials. And friendly advisory service by a large corps of trained and experienced Niagara field men has been a big help in raising the standards of crop production.

Niagara's business has been built on service and constantly improved materials and methods. Our one aim is to help growers market more profitable fruits and vegetables. With this goal in mind Niagara will continue to guard and support The Crops That Never Stop Growing.

Niagara INSECTICIDES AND FUNGICIDES

Niagara Chemical Division

FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, New York, Richmond, Calif., Jacksonville, Fla., Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans, La., Ayer, Mass., Harlingen, Tex., Pecos, Tex., Yakima, Wash. *Subsidiary:* Pine Bluff Chemical Co., Pine Bluff, Ark. *Canadian Associate:* NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario

WHEN YOU BUY Niagara YOU BUY PROTECTION* fmc *Trade Mark

Insist on HALE

Irrigation Pumping Units Specifically Designed for Irrigation

BECAUSE HALE UNITS ARE—

- **Efficient**
- **Dependable**
- **Compact**
- **Sturdy**
- **Provide wide range of Performance**

Why pay for rain that fails to fall? Only too often drought causes orchard or crop losses that would pay for a complete irrigation system in one season! Hale Irrigation Pumping Units are available in gasoline, Diesel and Electric-driven models. Sizes range from large CIRV (1600 U.S. GPM at 75 PSI; 1000 GPM at 150) to the small self-priming NP Unit 60 U.S. GPM free flow; 15 GPM at 40 PSI.

Write Dept. AFG for detailed information. State No. of acres and source of water.

IRRIGATION DIVISION

HALE FIRE PUMP CO.
Conshohocken, Pa.

Versatile

HALE Centrifugal Orchard Sprayer sprays at any capacites and pressures, up to 100 G.P.M. at 600 lbs. at fast tractor speed. No relief valve necessary. The most versatile sprayer on the market.

Coverage

The Hale Centrifugal Orchard Sprayer sprays with complete coverage, top and bottom, inside and outside. Nozzles adjustable for direction, volume and pattern.

Fast

Sprays efficiently as fast as your tractor can run thru orchard or grove. Remote controls for convenience and saving of materials.

Write Dept. AFG for Bulletin #302, State Size of Grove or Orchard.

Name .....

Address .....

No. Acres .....

SPRAYER DIVISION

HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.

Earliblue.
Courtesy USDA

The New BLUEBERRY Varieties

By GEORGE M. DARROW
U. S. Department of Agriculture

SIX large-fruited blueberry varieties have been introduced for the North. Five of these are of general interest because they produce larger and better fruit than the older varieties. The relative seasons of ripening of these 5 are given in Table 1.

The varieties listed were introduced to cover an 8-week harvest period. During the past season plantings of all of these fruited well in each of the principal blueberry areas and they are recommended for planting.

Table 1. Season of harvest of 5 newer blueberry varieties; per cent of harvest given by weeks.

Variety	Part of crop picked each week of harvesting season							
	1	2	3	4	5	6	7	8
Earliblue	40	60						
Bluecrop		10	50	40				
Berkeley			20	50	30			
Herbert				20	50	30		
Coville					20	30	40	10

Ivanhoe, a sixth new variety which ripens a week later than Earliblue, should be included with these 5 where it is hardy. So far it has done well in Maryland and in

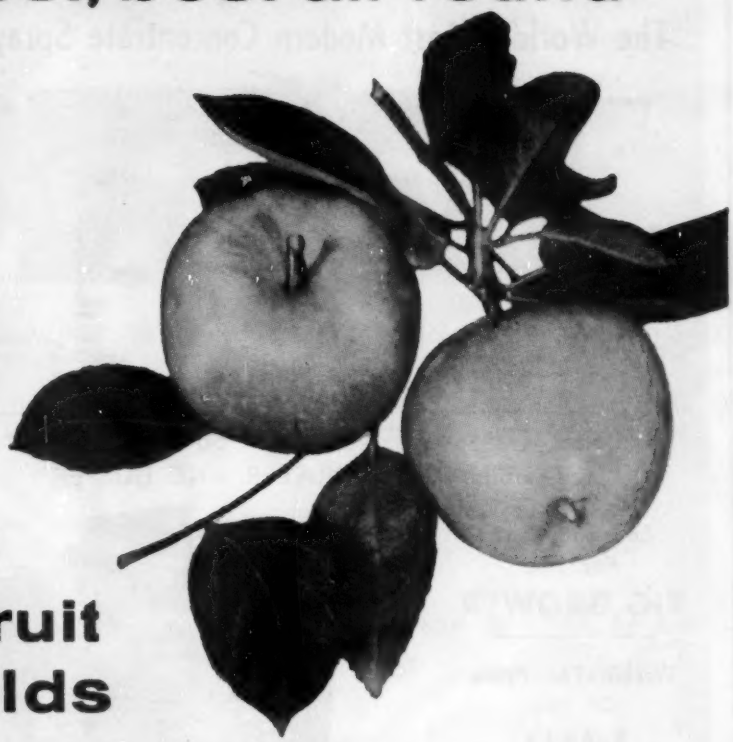
(*Continued on page* 38)

Table 2. Ratings of blueberry varieties by groups for season, color, size, scar, and flavor of fruit. 1 = poorest, 10 = best for all except season, where 1 = earliest and 10 = latest.

Variety and class	Season	Color	Size	Scar	Flavor	Remarks
Newer varieties						
Earliblue	1	8	8	8	8	Won't drop, hardy
Ivanhoe	3	8	9	9	9	Not fully hardy
Bluecrop	5	9	8	9	8	Drought-resistant, very hardy
Berkeley	6	10	10	8	7	Firm-fleshed
Herbert	8	7	10	7	10	Tender-skinned
Coville	9	7	10	7	9	Won't drop
Special-use varieties						
Ivanhoe	3	8	9	9	9	Not fully hardy
Atlantic	7	8	8	7	8	Drops, very productive
Pemberton	7	6	8	5	8	Most productive, tears
Burlington	9	8	7	10	7	Best for storage, very hardy
Limited-use varieties						
June	2	6	7	7	6	Earliblue better
Rancocas	3	7	6	7	7	Cracks, stunt-resistant
Stanley	3	8	7	6	9	High aroma, easy to prune, tears
Concord	5	8	7	6	8	Bluecrop better
Jersey	8	8	8	8	7	Herbert and Coville better
Rubel	8	8	6	8	7	Herbert and Coville better, small
Dixi	8	6	9	6	9	Herbert and Coville better, cracks
Varieties for discard						
Weymouth		5	8	7	5	Earliblue far better
Cabot	2	8	6	6	5	Cracks, costly to pick
Pioneer	5	6	6	6	9	Cracks, Bluecrop far better
Scammell	5	6	6	7	7	Bluecrop much better
Wareham	9	6	5	7	9	Herbert much better

Today's safest, best all-round

MITE KILLER



for
better kill
cleaner fruit
better yields

ARAMITE®

Before mites bite, be ready with Aramite, the best and *best-known* mite killer. Protect your crops for higher yields of marketable fruit.

Aramite gives outstanding control of European Red Mite, Two-Spotted, Clover and many other mite species.

Long residual saves you costs of additional sprays. Aramite is easily applied, compatible with sulfur and many other insecticides and fungicides. Aramite does not kill natural predators.

Order your Aramite supply from your *local* supplier; write, phone or call us if he is unable to deliver.

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

The

"Stainless-Steel Streamliner"

The World's Most Modern Concentrate Sprayer

200 Gallon Stainless-Steel Tank

Total Weight Less Than One Ton

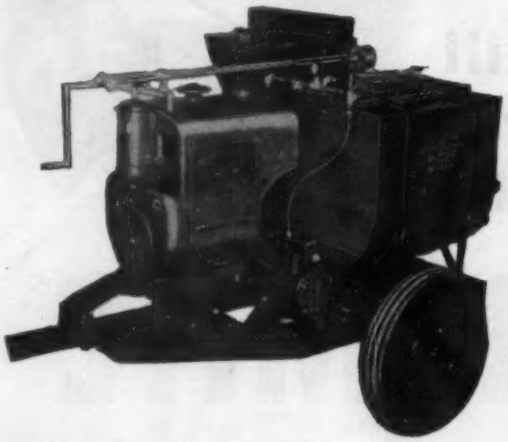
The Tried, Tested and Approved "BUFFALO TURBINE" COMBINATION SPRAYER AND DUSTER

Large Enough For The

BIG GROWER

Within The Price Of The

SMALL GROWER



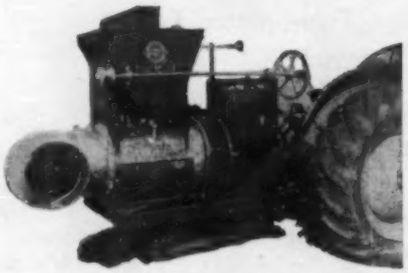
50 or 100 Gal. Tank
Skid or Trailer Model

For Orchard or Row Crop Spraying and Dusting

The "Buffalo Turbine" 3 Point Duster

Fits Hydraulic Lift on

ALL TRACTORS



The most powerful duster covering the greatest area on the market today. The "Buffalo Duster" has its own power and may be used on tractor-truck or jeep.

The Exclusive

"BUFFALO TURBINE"

Axial-Flow Blower
Used in All Models

Prices Start At Less Than $1,000

BUFFALO TURBINE

AGRICULTURAL EQUIPMENT CO. INC.

GOWANDA, NEW YORK

Gentlemen—Please send me full information on the Buffalo Turbine Sprayer-Duster.

I have approximately.....acres

in fruit consisting mostly of.....

.....

Signed .....

.....

.....

☐ Please arrange a demonstration.

BLUEBERRY VARIETIES

(*Continued from page* 36)

some places in New Jersey and New England but not so well in Michigan.

Table 2 gives a rating for each of several characters of blueberries. This rating is based on 1=poorest and 10=best for season, where 1= earliest and 10=latest. The table groups varieties into 4 classes—the 6 newer varieties, 4 varieties for special use, 6 varieties of limited use, and 5 that should not be planted.

By comparing the ratings given in Table 2, it is easy to see why the newer varieties should be planted.

Some growers have already pulled out Cabot, Pioneer, Scammell, and Wareham, and so far **Earliblue** has excelled Weymouth in every way.

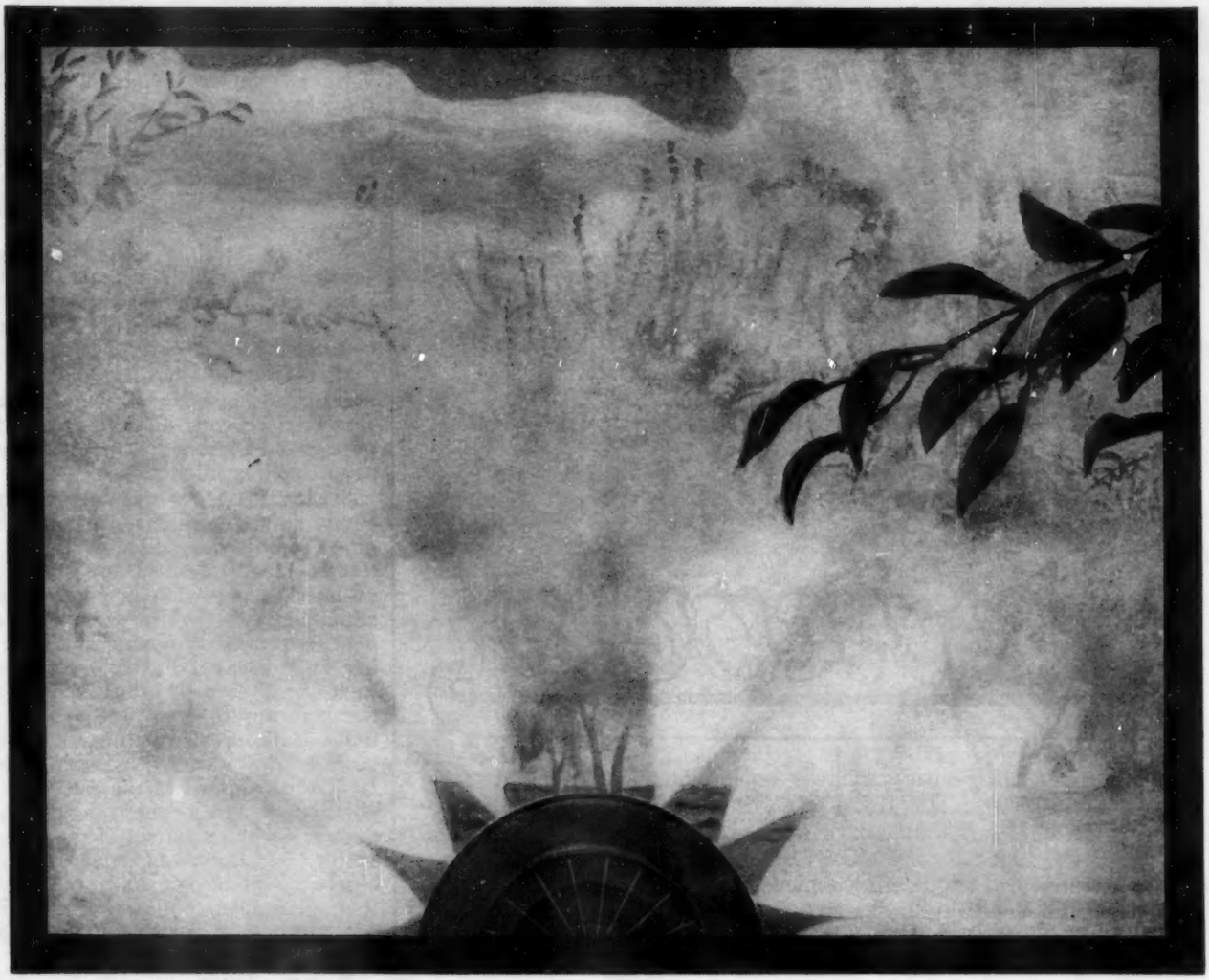
In the group of limited usefulness, **Dixi** has succeeded so well in Ohio, Oregon, and Washington that growers will be slow to replace it until they are sure that **Herbert** is better. Herbert is larger than Jersey and much larger than Rubel. It is also very high in flavor. **Bluecrop** seems much better than Concord in hardiness and is consistently productive. Stanley and Rancocas should be replaced by **Ivanhoe** where the latter is hardy, but both varieties are useful for early season.

In the group for special use, **Burlington** keeps best in cold storage and is one of the hardiest. However, it is much smaller than **Coville,** of nearly the same season. **Pemberton** is probably the most vigorous and productive blueberry variety. For home use and local market it is still useful, but the berries tear badly when picked. **Atlantic** also is very productive, but is not so consistently productive as Pemberton or Herbert. Both Atlantic and Jersey are reported to be subject to a bacterial dieback in Washington and Oregon.

In the newer variety group, all except Ivanhoe seem generally superior to the older ones. Their much larger berry size and vigorous bush growth make them cheaper to pick and easier to prune.

In eastern North Carolina the **Angola, Croatan, Wolcott,** and **Murphy** have been introduced. Because they are resistant to canker, are very vigorous and are early, they are quickly replacing older varieties. They are not adapted to the North.

The highbush varieties discussed above are not adapted to the Deep South. Two new varieties, the **Callaway** and **Coastal** (of the rabbiteye type), seem superior to the older varieties. They are vigorous and productive and are well adapted to the home garden and local markets in the South. THE END



life to crops; **death** to insects

You can give new life and added vigor to your fruits or vegetables — and kill harmful insects at the same time — by adding GRACE UREA PRILLS to your regular pesticide sprays.

It's the simplest and quickest way to give your crops the supplemental nitrogen they need — over and above what is supplied to them in mixed fertilizers.

GRACE UREA PRILLS' fertilizing power — an unsurpassed 45% nitrogen — is full strength and quickly absorbed by foliage. You get top efficiency, because roots absorb any spray dropping to the ground. And GRACE UREA PRILLS are compatible with any commonly used spray material. This fertilizer is safe to handle, dissolves readily and does not corrode or clog spray equipment.

Suggested amounts for mixing with pest-control sprays are given in the chart at the right. Less concentrated solutions may be used, depending on the frequency of spraying and the specific nitrogen needs of your particular crop and soil.

Pounds GRACE UREA PRILLS suggested per 100 gals. Spray

VEGETABLES	LBS.
Tomatoes, cucumbers, cabbage, cauliflower, celery, lettuce, peppers, snap-beans, sweet corn, strawberries	4-5
Sweet potatoes	5-10
Potatoes	15
Carrots, parsley	20
FRUITS	
Apples	3-5
Cherries	5
Citrus	5-7½
Plums and prunes	10

USE GRACE UREA PRILLS FOR ALL TYPES OF CROPS • IN IRRIGATION WATER • AS A TOP-DRESSING OR SIDE-DRESSING • WHEREVER NITROGEN IS NEEDED

AVAILABLE IN 80 LB. MULTIWALL SACKS FROM YOUR LOCAL DISTRIBUTOR

GRACE CHEMICAL COMPANY

HANOVER SQUARE, NEW YORK 4, N. Y.

Atlanta, Ga. • Chicago, Ill. • Memphis, Tenn.

New! fmc STERICOOLER–

New! DESIGN–

New! LOW PRICE

MOST MODERN HYDRO-COOLER YET!–

fmc 1955

Stericooler*

Don't buy until you have complete information about the newest HYDRO-COOLER available now! Completely different than anything you have ever seen, the 1955 Model FMC STERICOOLER is the crowning engineering achievement of the Fresh Fruit and Vegetable Industry.

The NEW . . . ALL NEW . . . FMC STERICOOLER product of the originators of Hydro-cooling by the Stericooler process includes all of the advance design features developed over a period of more than 15 years . . . *ALL* included in the New FMC STERICOOLER!

No other Cooler offers so much . . . two models to fit your requirements. Both are smaller in overall size than comparable competitive capacity models–both have a larger production capacity than any other comparable competitive units–The new 1955 FMC STERICOOLERS use less ice–Have a greater cooling capacity–and specially designed all metal construction. Most important of all–The New FMC STERICOOLERS may be yours at *new low prices!*

FOR COMPLETE INFORMATION CLIP THE COUPON—MAIL TODAY!

Gentlemen: Kindly send me more information on the new STERICOOLER

NAME_____

ADDRESS_____

RFD No._____

FLORIDA DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
P. O. BOX 1718, LAKELAND, FLORIDA

SC-1

*Exclusive Trade Mark for Food Machinery and Chemical Corporation's especially designed hydro-cooling unit.

A REAL MONEY CROP

(*Continued from page* 15)

8-8-8 per plant in October on non-vigorous plants to help them through the winter.

Too much fertilizer, especially nitrogen, and too late application may cause excessive late growth and subsequent winter killing of succulent shoots.

In some sections, such as New Jersey, fertilizers should carry about 2 per cent magnesium oxide because many soils are deficient in magnesium.

Pest Control—In the older blueberry growing sections, such as New Jersey, insects and diseases are more of a problem than in the younger areas such as Michigan.

Stunt disease, a virus, and mummy berry, a fungus disease, remain the most troublesome diseases of cultivated blueberries. There are two avenues of approach in controlling stunt disease. First, examine the field frequently, removing and burning any diseased bushes. Do this each year. Second, dust or spray the planting to control the sharp-nosed leafhopper, which carries and spreads the virus. A 5 per cent DDT dust applied at the rate of 40 pounds per acre during mid to late September helps get rid of the virus vector. In areas of concentrated blueberry plantings it is essential that all growers follow the control program. Old neglected plantings should be completely destroyed.

Mummy berry, as already mentioned, is partially controlled by thorough cultivation in the spring. Another point of attack on this disease is the use of Ziram sprays in the spring when spores are being discharged, about April 1. A second spray follows a week later. Austin C. Goheen, of the USDA, recommends the use of 300 gallons per acre of spray containing 3 pounds of Ziram in 100 gallons of water. The entire bush must be sprayed and thoroughly covered.

Scale insects of all kinds are best controlled with a dormant application made with 3 gallons of superior oil in 100 gallons of water. In New Jersey this can be applied any time after March 15 until blossomtime. Between 300 and 400 gallons of spray are required per acre, and it should be applied under a pressure of 300 pounds or more.

Blossom weevil can be controlled with lindane, dieldrin or parathion applied just before blossoms open. One pint of 25 per cent emulsifiable lindane per 100 gallons of water is a common mixture. Dieldrin at 2 pounds of 25 per cent wettable

powder per 100 gallons, or parathion at 1 pound of 25 per cent wettable powder per 100 gallons, is suggested. From 150 to 200 gallons of spray per acre are required.

First application is made at the green bud stage and a second 7 days later. Dusts of 1 per cent lindane or 2 per cent dieldrin or 1 per cent parathion can be used in place of sprays and applied at 25 pounds per acre. Cultivation and burning of brush around the blueberry planting help destroy over-wintering weevils.

Plum curculio can be controlled with the same materials used for blossom weevil, and also with methoxychlor at 3 pounds of 50 per cent wettable per 100 gallons water. One application of any of the materials is suggested at 75 per cent petal fall on Rubel variety, but may be omitted on Jersey and later varieties.

Maggot control is accomplished with a 2 per cent rotenone dust applied at the rate of 25 pounds per acre beginning about June 20 and following at 10-day intervals. Four applications are needed, with a fifth on late varieties in most seasons. In place of rotenone, commercial mixes of synergized rotenone and pyrethrin may be used at 40 pounds per acre.

PREPACKAGING BULLETIN

Are you planning to prepackage your apples this year? Or are you concerned about the efficiency of your prepackaging operation? In either case you will want to get a copy of Special Bulletin 396, just released by Michigan State College, East Lansing. Title of the new publication is, *Prepackaging Apples in Film Bags*, and it was written by the well-known authorities, J. H. Levin and H. R. Gaston. An analysis of 16 Michigan apple bagging operations enable the authors to present data and methods for increasing the efficiency of prepackaging operations. The bulletin covers equipment, layout, and methods.

Several major insect pests can be controlled with sprays or dusts in the first week of June. Among these are the **cherry** and the **cranberry fruitworms** and the **sharp-nosed leafhopper.** A 5 per cent methoxychlor dust is suggested for the first application at 60 pounds per acre. This is followed a week later with an application of 1 per cent parathion dust at 40 pounds per acre. A third application goes on a week after this where fruitworms have been a severe problem. For this a 5 per cent malathion dust at 40 pounds per acre is recommended.

Crown girdler can be controlled in September by applying one-half ounce of PDB in a trench 1½ inches deep and 1½ inches from the base of injured plants. A preventive treatment consists of applying 1 ounce of 5 per cent DDT in a foot-wide band around base of plants and working into soil. THE END

KNOCKS OUT major fungus diseases

PHYGON®-XL

Phygon-XL effectively controls apple scab, bitter rot of apples and peaches. Brown rot and brown rot blossom blight of peaches and many other stone fruit fungus diseases are also controlled. Its added advantages are low cost per acre, ease of use, high compatibility and the fact that it does not harm pollen and bees nor affect flavor and odor of crops. Write for Phygon Orchard Bulletin 32.

Says progressive Michigan grower A. J. Schaefer, Jr., of Schaefer Orchards:

"We have used Phygon-XL for 4 years now, not only as a dilute spray but in 4X concentration and in dust form. *It has given us very good control of scab*... during severe scab conditions. It's also economical to use."

Order Phygon-XL from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.

Naugatuck Chemical

Division of United States Rubber Company
Naugatuck, Connecticut

US RUBBER

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

WESTERN WASHINGTON BERRY PROGRESS

(*Continued from page* 16)

Red raspberry fields are dusted or sprayed to control the raspberry fruit worm and the orange tortrix worm. Fungicides are applied to prevent anthracnose, western yellow rust, and spur blight from damaging the plants.

Harvest costs are high, about 7 cents per pound of fruit, and there has been considerable interest in mechanical harvesters. Red raspberries grown in western Washington are mostly frozen.

Irrigation with overhead sprinklers has been adopted by many growers. Shallow cultivation, use of fall-sown rye as a winter green manure crop, and liberal use of manures and commercial fertilizers are accepted practices. Many growers have discarded the plow and disc in favor of shallow cultivation with 4-foot tractor-drawn rotary tillers which operate from the power take-off. With such machines, heavy green manure crops, other roughage, and even prunings are worked into the surface soil. Another aid is the mechanical hoe.

Black Raspberries — The black raspberry is not very popular with western Washington growers. Best black varieties yield only one-half as much as the best red varieties, and prices for both are about the same. Also, a virus disease stunts and even kills black raspberry plants but has no noticeable effect upon red varieties. The leading variety is Munger.

Blackberries—Only one kind of blackberry is grown extensively in this area. This is the Evergreen, sometimes called Oregon Evergreen. On the Atlantic Coast it is known as the Black Diamond variety. It is a trailing blackberry with canes often 20 feet long. Prodigious vigor enables this berry to produce the heaviest crops produced by any small fruit. A thornless form of the Evergreen is most popular.

Mechanization is increasing and it has been announced that a successful blackberry harvesting machine has been invented. Rotary tillage tools and the mechanical hoe are being used increasingly for cultivation.

Strawberries—From about 1910 to 1950, the famous Marshall variety dominated the strawberry industry in western Washington. Since 1950, the new variety, Northwest, bred and introduced by Washington Agricultural Experiment Stations, has built up rapidly so that it occupies more than 50 per cent of present strawberry acreage in Washington. Reports from processors' fieldmen indicate that 75 to 90 per cent of new acreage in 1955 will be planted to Northwest.

The explanation of Northwest's popularity is simple enough. Where Marshall yields 4 tons per acre, Northwest yields 6 to 8 tons. Northwest is better than Marshall when frozen for dessert purposes, and this is the principal outlet for the western Washington crop. As grown in western Washington it has perfect light red flesh color, the slices hold their shape, and the flavor is excellent. It also has proved to be superior for canning and shipping fresh.

One of the most valuable characteristics of the Northwest variety is lateness of blossoming. This reduces loss from late spring frosts which often seriously curtail the Marshall crop. Northwest also produces more flower clusters and more flowers and berries per cluster.

Strawberry acreage in Washington is restricted by a shortage of harvest labor. Other operations are mechanized to such an extent that hand labor is kept to a minimum. Recently James McClenny of Anacortes, Wash., invented and successfully demonstrated a new machine that reduces the number of pickers required. The machine is an endless belt which takes the place of the pickers' carriers, thus releasing both hands for picking. The belt extends across several berry rows. Two pickers work on each row, one on each side, and place the berries on short side belts which deliver them onto the main belt. The main belt delivers the berries at a central point into field boxes. These boxes are carried along on a trailer until removed to a waiting truck.

A big factor in the continued success of the strawberry enterprise in this area is the program of producing certified planting stocks. In 1954, the 10 members of the Washington Certified Strawberry Plant Growers Association produced an estimated 16,800,000 plants under supervision of the Washington State Department of Agriculture.

Blueberries—The cultivated blueberry, immigrant from New Jersey about 1924, proved to be well adapted to the slightly acid sandy and silty valley soils and the more acid peats and mucks of western Washington. As acreage and production increased, the problems of marketing led to the organization of the Pacific Northwest Blueberry Growers Association, of which True J. Ouillette, of Sumner, Wash., is president. This group, representing about 85 per cent of all acreage in Washington, has co-ordinated marketing of fresh blueberries in the Pacific states. They have diverted an increasing tonnage to canners and freezers as the total supply increased above the quantity that could be sold fresh. THE END

APS AWARDS

THE American Pomological Society, America's oldest national fruit organization, now in its 107th year, has awarded Marshall P. Wilder Silver Medals to William Horace Alderman and Fredrick Wilson Popenoe for their contributions to horticulture, as follows:

"William Horace Alderman, horticulturist, scientist, plant breeder and administrator —through whose leadership and skill in plant breeding American horticulture has been enriched by the development and introduction of meritorious new varieties of fruits."

W. H. Alderman

"Fredrick Wilson Popenoe, botanist, horticulturist, plant explorer, scientist, teacher, author and administrator — for leadership in the field of tropical and subtropical fruits."

F. W. Popenoe

Prof. Alderman retired from his position as chief of the division of horticulture, University of Minnesota, St. Paul, in 1953.

Dr. Popenoe is director of the Escuela Agricola Panamericana in Honduras, Central America.

RED STELE RESISTANCE IN STRAWBERRIES

STRAWBERRY varieties previously classified as resistant to red stele fungus may not be resistant to new races of the fungus, USDA tests show.

Among these varieties are Temple, Sparkle, and Fairland. A number of fields of these varieties in New Jersey and Maryland have been found to be infected with red stele.

Multiple red stele-resistant varieties are the best solution to this problem. **Stelemaster,** a USDA introduction, is being watched with interest in New Jersey as a variety resistant to multiple strains of the red stele fungus, Ernest G. Christ, Rutgers extension horticulturist, reports.

Meanwhile, nursery stocks of all varieties, including those previously considered resistant, should be checked rigidly by nursery inspectors and growers for presence of red stele in an effort to avoid spread of the fungus. Once a field becomes infected, heavy damage results.

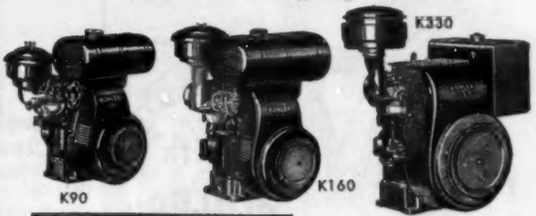
KOHLER ENGINES
4-CYCLE • AIR-COOLED

Garden tractor with 30" lawn mower attachment powered by a Kohler K90 engine and built by Bolens Product Div., Food Machinery and Chemical Corp., Port Washington, Wis.

A Kohler K90 Engine powers this Model "A" Farm-ette garden tractor, built by Tom Moore Tractor, Inc., Mantua, Ohio

This Bantam Rotavator, powered by a Kohler K90 Engine, is easy to handle, reliable. Built by Howard Rotavator Co., Inc., Arlington Heights, Ill.

Reliable, heavy duty service for power equipment



K90.....2.5 to 3.6 H.P.
K160....3.6 to 6.6 H.P.
K330.....7 to 12 H.P.
K660.....12 to 26 H.P.

Modern design, air-cooled Kohler Engines from 2.5 to 26 H.P. offer a wide range of power to fit all applications requiring a reliable and economical power source.

Large bore and short stroke mean smoother operation, more power per cubic inch, slower piston travel that reduces friction and wear at any speed. High voltage magneto insures snappy, all-weather starting. Efficient cooling at all operating temperatures and speeds.

Engineered and made by Kohler of Kohler, known internationally for high-quality products.

Kohler branch offices are located in sixteen principal cities. Sales and service distributors, throughout the country, have parts available and are ready to assist you in selecting a Kohler Engine best suited for your requirements. Write for information.

Kohler Co., Kohler, Wisconsin • Established 1873
KOHLER OF KOHLER
PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

GRAFTWAX TREE HEALANT
Since 1929 excels in grafting; cures tree and plant wounds, blights, used for cavities. Repels rodents. Adhesive, waterproof. IT SEALS AND HEALS. APPLY COLD. Put up in 1 lb. and 6 lb. cans. $1.05 per lb., $2. per 2 lbs., $6. per 6 lbs., postpaid. W. of Mississippi R. add 15c per lb. Free Sample.
CLARION DEVELOPMENT CO., Dept. A, Clarion, Pa.

z. i. p.
REPELLENT FOR DEER, RABBITS, FIELD MICE
Gives long-lasting protection for orchard trees, row crops and nursery stock • May be sprayed or painted • See your local dealer or write . . .
LARVACIDE PRODUCTS, INC.
117 Liberty Street, New York 6, N. Y.
SAN FRANCISCO 7, 1515 Third Street

Specify AMES

Patented
ENGINEERED SPRINKLER, FLOOD, FURROW IRRIGATION EQUIPMENT
W. R. AMES CO.
Established 1910
150 Hooper St · San Francisco 7, Calif.
3905 East Broadway · Tampa 5, Florida

Strengthen WEAKENED CROTCHES

Quickly—Easily

Simply cut off length you need
with
REDI-BOLT®
THREADED STEEL RODS
24" and 36" Lengths in Seven Diameters 1/4" to 3/4"
Fits Standard Nuts

Protect your trees . . . prevent loss of weak branches to the wind. Just cut off the length of REDI-BOLT you need and add standard nuts. Excellent for hundreds of other repair jobs, too. Can be heated and bent to practically any shape. Keep a stock on hand.

Ask your Hardware Dealer, or Write to

REDI-BOLT, INC.

5362 Indianapolis Blvd., East Chicago, Indiana

NEW! NEW! NEW!

DIFFERENT—DIFFERENT

THIS NEW BOOM NOZZLE IS ENTIRELY DIFFERENT THAN CONVENTIONAL NOZZLES. BY MAKING A FLAT FAN SPRAY DISTANCES NEVER DREAMED OF ARE OBTAINED. ONLY A TEST CAN PROVE IT.

What fruit growers tell us.

"For many places your NEW BOOMS do better work than my expensive SPEED SPRAYER"

"I never knew what efficient spraying was until I used your BOOMS"

"I saved 15% of spray material with NEW BOOMS you furnished."

W. L. HAMILTON & CO.

BANGOR, MICH.

The State Horticultural Association of Pennsylvania during its recent joint convention with National Peach Council in York, Pa., voted to continue the same slate of officers for 1955, as follows: From left—John Phillips, North East, 2nd vice-president; John Linde, Orefield, president; Harry Peters, Scotland, 1st vice-president; and Carl Bittner, State College, assistant secretary. John Ruef, State College, secretary, and John Phillips, North East, the photograph at the right.

STATE NEWS

(*Continued from page* 17)

Packaging Profits

CONNECTICUT—A grower panel on packaging brought to light the information that the net income from packaging is well worth its added cost. The panel was part of a program sponsored by the Connecticut Pomological Society, the New Haven County Farm Bureau, and the Connecticut Experiment Station at the New Haven Experiment Station February 24.

In other talks, Brainard Peck, of the state department of markets, reported that Baldwin holdings in storage are the largest in years, and advised faster movement of storage apples.

Fruit sprays were carefully discussed by Dr. Philip Garman and Bill Tunis, who urged growers to follow their compatability charts carefully. Representatives of several chemical companies were on hand with the latest information on compatability of their spray materials.—*Sherman P. Hollister, Sec'y, Storrs.*

Increase Plantings

WISCONSIN—Apple growers in this state have convinced themselves that they can produce better quality apples than they ever thought possible. Encouraged by increased demand and higher prices, they are increasing their apple plantings on a modest scale.—*H. J. Rahmlow, Sec'y, Madison.*

Colder than Usual

NEW JERSEY—Rather cold weather during January and February froze the soil to a depth of about a foot, which has not occurred here for many years. We do not anticipate any serious injury to buds at this time.—*E. G. Christ, Sec'y, New Brunswick.*

Fruit Grower Dies

MINNESOTA—Ben R. Neilson, longtime member of the Minnesota Fruit Growers' Association and owner of an orchard at Long Lake, died early in March.

Weather this winter was unusually favorable, so that little winter injury is expected.—*J. D. Winter, Sec'y, St. Paul.*

New Officers

VERMONT—Officers of Vermont State Horticultural Society for 1955 are: President, Wray Griffin, Castleton; vice-president, Ruth Moody, Milton; treasurer, Stuart Witherell, Middlebury; secretary, C. Lyman Calahan, Burlington; auditor, B. H. Beck, Middlebury. New members of the executive committee are Sanford Witherell, Shoreham, and Donald W. Smith, Barre..

Delegates to the New York-New England Apple Institute are William H. Darrow, Jr., Putney, and Lindsay Jarvis, Springfield. Delegate to the Agricultural College Advisory Committee is Carleton G. Howe, Dorset.—*C. L. Calahan, Sec'y, Burlington.*

Heavy Pruning

TENNESSEE—A really heavy and conscientious pruning job has occupied growers in this state. Trees still show the effects of the '50 and '51 freezes, plus three successive summers of searing droughts. Spirits remain high among growers, with many new plantings throughout the state.

Bud prospects seemed good the first week of March. Apple buds were especially good except for trees over-cropped last year. Peaches were heavily budded, but too much of the wood is light-weight, and a few early blooms had popped by March 9! Strawberry growers anticipate a good crop as weather has been conducive to well-nourished crowns. Many of the strawberry plants, however, did not last through '54 drought.—*A. N. Pratt, Sec'y, Nashville.*

Prize-winning Grower Dies

IOWA—Walter L. Gardner, West Point, died recently at the age of 78. A member of the Iowa Fruit Growers Association, his fine apples won many prizes at fairs and exhibits.—*Glenn Raines, Sec'y, Des Moines.*

New Department Head

FLORIDA—Dr. Walter Reuther, principal horticulturist at the USDA citrus laboratory in Orlando since 1946, has been named head of the department of horticulture at the University of Florida. He will begin his new work in Gainesville June 1.

A 1933 graduate of the University of Florida, he worked as assistant horticulturist at the Gainesville and Lake Alfred stations. After receiving his doctor's degree from Cornell in 1940, he remained there as pomology professor for a year. In 1941 he joined the USDA and was stationed at Gainesville. From 1942 to 1946 he was in charge of the USDA date gardens at Indio, Calif.

Reuther succeeds G. H. Blackmon, who retired Jauary 1 after 31 years of service, and is now in Iran on assignment for the Foreign Operations Administration.—*J. Francis Cooper, Ext. Editor, Gainesville.*

Control Fire Blight

MISSOURI—Use antibiotics to control fire blight of apples, William R. Martin, extension horticulturist of the University of Missouri and secretary of the state horticultural society, told Franklin County growers last month.

Experiments to control fire blight were pioneered by Dr. A. E. Murneck, Missouri Experiment Station horticulturist. Fire blight, one of the oldest plant virus diseases known, causes much damage to Jonathan and, to a lesser degree, Golden Delicious apples. Antibiotics are applied in the bloom period to eradicate infection which is spread by bees, Martin said.

Eckert Re-elected

ILLINOIS—Curt E. Eckert, Belleville,

was elected for a second term as president of the Illinois State Horticultural Society and the Illinois Fruit Council.

Other officers elected: Frank Chatten, Quincy, first vice-president, and Paul Mallinson, Geneseo, second vice-president. Harold J. Hartley, Carbondale, was reappointed secretary-treasurer.

June 8 is the red-letter day for Illinois fruit growers. The annual Summer Orchard Day will be held that day at the farms of Frank and Bob Chatten, Quincy. The program will feature exhibits and demonstrations of new orchard equipment and supplies.—*Harold J. Hartley, Sec'y, Carbondale.*

Prunes Lead in Census

IDAHO—The number one fruit tree in this state is still the prune—but there were almost 50,000 fewer prune trees in 1954 than in 1950, the Idaho Department of Agriculture-USDA tree census has shown.

Total of non-bearing and bearing prune trees in 1954 was 350,457. Apples took the second place spot with 245,244, and peaches were third with 194,687. Sweet cherries, pears, plums, sour cherries, and apricots followed in that order.

Most of the successful orchardists are planting more trees, and are choosing varieties the market wants.

The Mesa Company has sold its 3,500-acre fruit and livestock ranch to Bryan Ball, formerly of Dillon, Mont. The sale included all fruit packing and processing plants, including a canning plant where Mesa-M Brand apple sauce is produced, orchard equipment, and the Mesa-M trademark.

A number of years ago Mesa Orchards was the largest apple orchard in the world in one tract, under one management. It consisted then of 1,500 acres of fully planted apple orchards.

Albert Walter Paulsen, of Wilder, died February 22. A member of the board of directors of the Idaho State Horticultural Society, he was president of the society in 1953-54. The owner of a large Italian prune orchard, he was 60 years old.—*Anton S. Horn, Sec'y, Boise.*

CALENDAR OF COMING MEETINGS & EXHIBITS

Apr. 14-16—California Grape & Tree Fruit League, Hotel Mark Hopkins, San Francisco.—Harold Angier, Gen. Mgr., 717 Market St., San Francisco.

Apr. 28-29—Shenandoah Apple Blossom Festival, Winchester, Va.

June 8—Illinois State Horticultural Society summer orchard day, Frank and Bob Chatten Farms, Quincy.—Harold J. Hartley, Sec'y, Carbondale.

June 16—Small Fruits Day, Ohio Agricultural Experiment Station, Wooster.—C. W. Ellenwood, Sec'y, OSHS, Wooster.

Aug. 1-3—United Fresh Fruit and Vegetable Association 7th annual merchandising conference, Conrad Hilton Hotel, Chicago. Association headquarters—777 14th St., N. W., Washington 5, D. C.

Aug. 10-11—Ohio Pesticide Institute annual meeting, Ohio Agricultural Experiment Station, Wooster.

Aug. 15-18—International Apple Association annual meeting, Statler Hotel, Detroit, Mich. Association headquarters—1302 18th St., N. W., Washington 6, D. C.

Aug. 15-19—Florida Citrus Institute, Camp McQuarrie.

Aug. 16-20—Centennial of Farm Mechanization, Michigan State College, East Lansing.—A. W. Farrall, Head, Agr. Engr. Dept., MSC, East Lansing.

Aug. 29-Sept. 6—International Horticultural Congress 14th annual meeting, Scheveningen, Netherlands.—Dr. G. de Bakker, Sec'y, Bezuidenhout 30, The Hague, Netherlands.

Nov. 1-3—Florida State Horticultural Society annual meeting, Clearwater.—Ernest L. Spencer, Sec'y, Bradenton.

Wisconsin-powered turbine sprayer-duster, operating in an apple orchard—built by Buffalo Turbine Agricultural Equipment Co., Inc., Gowanda, N.Y.

2-man Wisconsin-powered sprayer speeds up spraying — built by A. B. Farquhar Co., York, Pa., Div. of Oliver Corporation.

Wisconsin-powered Myers General Purpose sprayer for high pressure gun spraying. Made by The F. E. Myers & Bros. Co., Ashland, Ohio.

Low-slung Wisconsin-powered sprayer, built by Besler Corp., Emeryville, California.

Wisconsin-powered "Low Boy" orchard sprayer, built by John Bean Div., Food Machinery & Chemicals Corp., Lansing, Michigan.

Choose

Orchard Equipment that Uses the Best POWER

WISCONSIN

HEAVY-DUTY *Air-Cooled* ENGINES

It is a source of pride to us, as engine manufacturers, and, we believe, a source of satisfaction to users of power equipment, that so many leading builders of Orchard Equipment give their preference to Wisconsin Heavy-Duty Air-Cooled Engines.

The selection of built-in power units for many kinds of orchard machines calls for careful and thorough investigation of the engines that are specified as "original equipment". It also calls for the same kind of consideration in "measuring up" the engine builder . . . to make sure that both the product and the producer will meet the high standards of the great concerns who build most of the orchard equipment you buy and use.

These orchard equipment builders appreciate the value of such Wisconsin Engine features as heavy-duty design and construction to provide the rugged stamina needed in this type of service; file-hard, self-cleaning tapered roller bearings at BOTH ends of the crankshaft for smooth running and greatest protection against bearing failure; high tension OUTSIDE Magneto equipped with Impulse Coupling for easy starting in any weather at low cranking speed; positive ignition and pump circulated lubrication . . . plus efficient, foolproof AIR-COOLING at all temperatures from sub-zero to 140° F., and Lugging Power that hangs on through the shock-load pinches.

You can't do better than to be guided by the good judgment of orchard equipment builders who specify "Wisconsin Power" for their machines.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

A 8352-½

Read the advertisements and remember advertisers will be glad to send you catalogs, specifications, and prices. Be sure to say you saw it in AMERICAN FRUIT GROWER.

If it's for an orchard large or small we have it. We would like to send you our latest free catalogue!

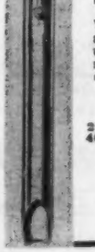
Write to

TYSON

Orchard Service

A complete line of orchard tools, equipment and chemicals.

Flora Dale Pa.



POCKET MICROSCOPE

3 BILLION DOLLAR

Vegetable (plant, vegetable and fruit) loss each year in plant and fruit production caused by insect and plant diseases.

HOW MUCH DO YOU LOSE?

YOU and YOUR HELPERS should have a pocket microscope ready for instant use in the study of scales, red spiders, mites, insects and fungi, in fields, beds or greenhouses.

ORDER NOW—BE SURE

Find your plant enemies.

A FINE GIFT FOR A FRIEND

20 power, $3.50 (3 for $ 9.00) | one of
40 power, 4.50 (3 for 12.00) | each $7.80

Postpaid. No C.O.D. Please Money-back guarantee.

JAMES A. VAN KLEECK

Horticultural Consultant

1242 WEBB RD.-7, CLEVELAND 7, O.

Orders from Ohio 3% Tax

DON'T TAKE CHANCES

with toxic insecticides and fumigants such as Systox, Parathion, TEPP, Aldrin, Chlordane, etc.

WILLSON AGRI-TOX RESPIRATOR

USDA accepted Willson Agri-Tox is the universal respirator for handling and applying toxic farm chemicals. Write for bulletin, prices and name of your nearest distributor.

WILLSON®

Leaders in Research and Development of Safety Equipment Since 1870

WILLSON PRODUCTS, INC.

118 Thorn Street, Reading, Pennsylvania

Brush Disposal Time Cut In Half

WOODS ROTARY CUTTER FOR BRUSH SHREDDING AND MOWING

Mr. Albert J. Livezey of Barnesville, Ohio told the 107th Annual Meeting of the Ohio State Horticultural Society of actual results with his Woods Rotary Cutter. He said, "We have no exact record of time saved but we feel that at least half is saved. While we have had only one season's experience, we feel that a Woods Rotary Cutter for brush disposal in the orchard is one of 'the finds' of our day. We have never, I believe, found anything about which we are so enthusiastic.

Machine shown is Offset Model 80 with orchard shield. 9 other models 42" to 114".

"Its use is not limited to brush disposal. It's the 'cat's meow' for orchard mowing." "Two or three farmers here have said that this Rotary Cutter is the best machine on their farms. The general farmer has many uses for this cutter. Corn stubble or corn stalks left after picking can quickly be put in shape for plowing or discing."

For a complete copy of Mr. Livezey's talk, send the coupon below.

WOOD BROS. MANUFACTURING COMPANY
26501 South Fourth Street
Oregon, Illinois

Please send me Mr. Livezey's talk

Name .....

Address .....

City .....

State .....

How to Select New STRAWBERRY Varieties

For best results choose varieties which originated in your own region

GROWERS are more concerned with strawberry varieties and strawberry stocks today than at almost any time in the past. There are two or three principal reasons for this interest. First are the promising performance of newer varieties in some regions and the question of how widely adapted a new variety may be; second, established varieties have fallen into disrepute because of weakened or diseased stocks; and third, price of strawberries has been strong for the past 3 years.

The major commercial strawberry-growing regions of the United States are roughly outlined on the accompanying map. These regions were established by the performance of different varieties after many years' trial and reflect largely the effects of day length, temperature (both high and low), and rest period on strawberry plants. Variety tests in different regions have shown that varieties originated in one region are more satisfactory in that region than in any other. With that thought in mind, growers can limit their trials of new varieties to kinds originated in their region or adjacent regions. Thus, it would be of doubtful value for a Michigan grower to plant Fla.-90, originated in Region 1, when varieties such as Vermilion, Empire, and Eden, originated in his region or an adjacent one, are available.

The 10 principal varieties of the United States are listed in the table, according to the total acreage grown in 1954.

Ten principal varieties of strawberries of the United States as estimated by 1954 strawberry acreage[1]

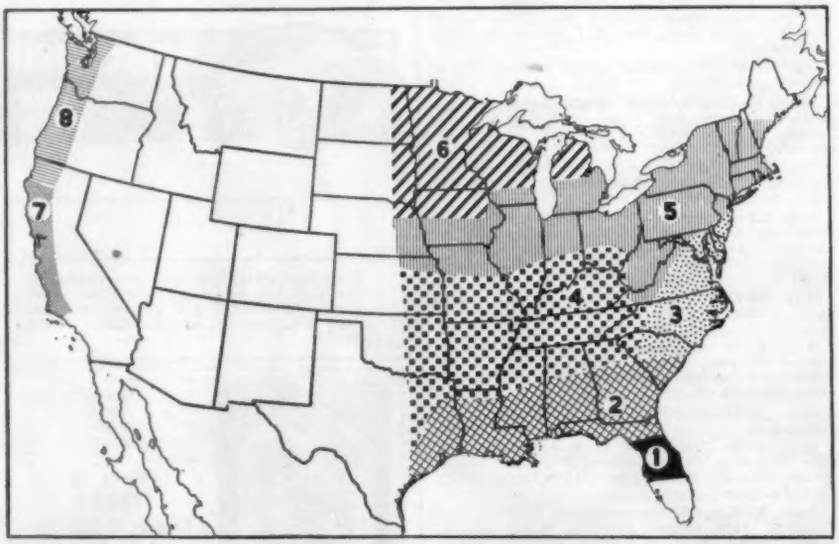
Variety	Acreage grown		Region[2]
	Per cent of total	Number of acres	
1. Blakemore	24	26,000	3, 4
2. Marshall	20	22,500	8
3. Howard 17 (Premier)	9	9,500	5
4. Shasta	8	8,000	7
5. Robinson	7	7,500	5
6. Klonmore	7	7,500	2
7. Northwest	5	5,000	8
8. Catskill	3	3,500	5
9. Sparkle	3	3,500	5
10. Tennessee Beauty	3	3,500	4

[1]Acreage reported by Agricultural Marketing Service, USDA, Oct., 1954.
[2]See map for outline of regions.

New Varieties

Varieties introduced in the past 4 years that are of interest at this time include **Empire, Eden, Plentiful, Fla.-90, Albritton, Dixieland, Pocahontas,** and **Stelemaster.**

Empire and **Eden,** originated at the New York Agricultural Experiment Station, Geneva, appear to be adapted to areas where Howard 17 and Catskill are grown. **Empire,** a midseason variety, has fruit more attractive in color, glossiness, and general appearance than either Howard 17 or Catskill. The berries



Outline map of United States showing principal commercial strawberry-growing regions (based on performance of varieties). Region 1, MISSIONARY; Region 2, KLONMORE; Region 3, MASSEY and BLAKEMORE; Region 4, BLAKEMORE; Region 5, HOWARD 17 (Premier) and CATSKILL; Region 6, DUNLAP; Region 7, SHASTA and LASSEN; and Region 8, MARSHALL.

of Empire are larger than those of Howard 17, but not so large as those of Catskill; when grown in Maryland they are firmer than those of either of the older varieties. **Eden** berries have fine color in frozen pack, but the flesh is soft and the berries become small as the picking season advances. Plants of Eden seem to be very susceptible to leaf spot and scorch.

Plentiful, originated in Illinois, is very productive but, under Maryland conditions, its fruit is too soft for commercial use. **Fla.-90** is primarily adapted to Regions 1 and 2. It is a very prolific runner producer, surpassing Blakemore and Robinson in this respect, and it would make too dense beds in central and northern regions.

Albritton is a midseason variety, originated in North Carolina, and appears to be adapted mainly in Region 3. In North Carolina it is replacing Massey rapidly because of its firmness, tough skin, smoothness, and attractive appearance. Although it is primarily a fresh-market berry, fully ripened fruit yield an attractive frozen pack.

Dixieland, Pocahontas, and **Stelemaster** originated in Maryland. **Dixieland** is early ripening and seems to be adapted to about the same areas as Blakemore. Its fruit is as firm as Blakemore. It is larger, slightly darker red, and somewhat smoother than Blakemore and is comparable in quality.

Complete descriptions of new strawberry varieties Empire, Eden, Erie, Essex, and Dresden are contained in Bulletin No. 762, available from the New York State Agricultural Experiment Station, Geneva, N.Y.

Pocahontas is a midseason variety rather widely adapted throughout south central United States. It has large, robust plants and produces runners freely. The fruit is firm, bright red, with tough skin, large average size, and moderately tart taste. Both **Dixieland** and **Pocahontas** are acceptable for frozen pack.

Stelemaster was introduced in the fall of 1954 for areas where new races of red stele fungus have damaged Temple and Sparkle, since it is resistant to more than one race. It is an early variety with medium-sized, firm fruit of good flavor. The leaves are subject to leaf spot and the plants are not so drought-resistant as those of other varieties.

The Maine Experiment Station has introduced the **Monmouth, Orland,** and **Maine-55** varieties primarily for home use. In Maryland their fruit is too soft to have a commercial place. All are reported

(*Continued on page* 60)

PREVENT APPLE SCAB WITH PURATIZED®

AGRICULTURAL SPRAY

Commercial Growers all over the country praise **Puratized Agricultural Spray** — wouldn't be without it. They know how **it stops scab,** right after infection, even before you can see it. You, too, can protect your apples against dollar losses from apple scab, and **get rid of it fast,** with this **easy-to-use, economical** fungicide. To you it means a bigger and better crop, fancier apples.

Get Puratized Agricultural Spray now and spray early for thorough control. Puratized also works effectively with Glyodin. Consult your local dealer or write today for full details.

Gallowhur / CHEMICAL CORPORATION

801 Second Ave., New York 17, N. Y.

Are You A Nursery Salesman?

Add to your income by selling AMERICAN FRUIT GROWER. It's a logical combination for AMERICAN FRUIT GROWER will help your customers get the best results from the nursery stock you sell them. *Make every call pay!* This means additional cash for you regardless of whether you sell a nursery-stock order or a subscription to AMERICAN FRUIT GROWER.

Write today for our liberal, nursery agents' plan. Address:

EDWARD MEISTER, Circulation Manager

AMERICAN FRUIT GROWER

Willoughby, Ohio

The ONE Respirator
that protects against—
PARATHION—E.P.N.—DIELDRIN
ALDRIN—T.E.P.P.—H.E.T.P.
O.M.P.A.—SYSTOX

The M.S.A.
FARM SPRAY
RESPIRATOR

For safer outdoor spray programs, this ONE Respirator *doubles* the breathing protection. Recently accepted new type filters do the job effectively, and are replaceable with in-use M.S.A. Farm Spray Respirators. Accepted by U.S. Government Interdepartmental Committee on Pest Control. Write for details.

M.S.A. GMC-1 INDUSTRIAL GAS MASK—Easy, convenient to use for heavier mixing concentrations of all the above organic insecticides. "All-Vision" facepiece gives full facial protection—maximum vision.

DEALERS WANTED—Your present customers are your best prospects. Cartridges and filters mean repeat business. Write for price and product details.

MSA MINE SAFETY APPLIANCES CO.
201 North Braddock Avenue
Pittsburgh 8, Pa.
82 Branch Offices in the United States and Canada

It's this easy to join
irrigation pipe
with

No tools required!
No yokes, latches
or catches to cause extra work, extra trouble, extra expense!

Besides being easier and faster to use, McDowell Couplings offer other important benefits. They're built stronger to take rough handling . . . require less upkeep . . . and the patented pressure-lock design provides a watertight seal *automatically*.

If you're considering sprinkler irrigation, see your McDowell dealer.

McDowell-The Best Coupling Made!
Sizes 2" through 8"

MAIL COUPON for details!
2-D
Name_____
Address_____
City_____ Zone____ State_____

McDOWELL MANUFACTURING CO.
STANTON AVE., PITTSBURGH 9, PA.

Strawberries BY THE TON

The story behind California's phenomenal strawberry yields

By EDWARD C. KOCH
Farm Advisor, Santa Cruz County

THE smallest agricultural county in California produces the highest yields of strawberries per acre in the world. A 3-acre patch on the J. M. Reiter ranch exceeds 30 tons to the acre in one picking season. A 40-acre ranch with 12 tenants produced over 20 tons per acre for two out of four cropping years.

Santa Cruz County strawberry plantings have averaged over 11 tons to the acre during the period 1950 to 1954. During the same period California had an average of more than 6½ tons to the acre. National plantings averaged less than 2 tons per acre, even with California production included.

Such county figures call for some explanation, particularly when some sections of the country have organized "Five Ton to the Acre Clubs."

Santa Cruz County average figures include plantings from their first to their fourth years of production. First-year production is considered good at 4 tons to the acre. Second- and third-year yields are generally high. Many growers obtain 15 to 20 tons during this peak production period. Fourth-year yields are similar to the first year as the plantings decrease in vigor.

Virus Resistance

An important key to these high yields lies in the strawberry varieties grown. The University of California, through the research work of Dr. Harold Thomas and the late Earl V. Goldsmith, released 5 new varieties in 1945. Two of these, the **Shasta** and **Lassen,** have become the major commercial varieties grown in California. These varieties are resistant to "yellows," a virus disease that plagued the industry in the 1920's and 30's when the Nick Ohmer, Dorsett, and Marshall-type varieties were popular.

The 5 University of California varieties were the result of 10 years of breeding work to develop such virus resistance. The Wilder Medal was recently awarded by the American Pomological Society to the University of California Agricultural Experiment Station for the development of these varieties which are now the basis of so valuable an agricultural industry.

Although these varieties are grown successfully state-wide, it so happens that the Santa Cruz-Monterey Bay area has the climate conducive to highest yields. Some of the best plantings are less than one mile from the bay where fog and ocean breezes keep temperatures mild the year round.

The new varieties normally produce fruit from late April to December which is another answer to Santa Cruz County's fabulous production. Other strawberry sections of the nation can count on a cropping period of two to four months.

Irrigation is another key to our high yields. Most of the strawberry plantings in other states are dependant on summer rainfall and in periods of drought, yields fall and plantings fail. Our annual drought from May to November is probably a blessing in that we must rely on irrigation.

Much hand labor goes into production of California strawberries. Tenant farmers remove early summer runners by hand. This planting was between crops at time of photo.

Intensive Cultivation

In addition to suitable varieties, favorable climate, long cropping period, and irrigation, our plantings are intensively farmed. An owner-tenant system is in general use. Owners operate from 10 to 100 acres. A tenant and his family are assigned to every 3 to 4 acres, and usually reside on the property. The owner provides capital, land, housing, and equipment while the tenant provides all labor and shares some minor production costs. Income is shared by owner and tenant.

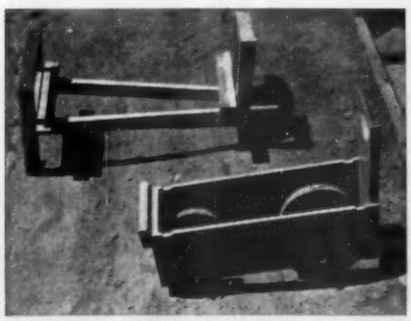
It might be said that the tenant practically lives with a crop for 10 months of the year. The amount of hand labor is extremely high. Such labor is used in planting, weeding, runner removal, picking, pruning, fertilizing, and applying insecticide. Some growers have mechanized to the extent of machine planting, aircraft dusting, and rotobeating as a pruning substitute.

In late winter plants are hand-pruned as a sanitation measure to remove old foliage. Tenant farmer then rakes prunings to end of the long strawberry rows where they are piled and burned.

Generally about 25,000 plants are planted per acre on 24-inch beds with two rows of plants on top of each bed. Bed spacing is 42 inches from center to center with irrigation furrows about 8 to 10 inches deep between the beds. These plants maintain their identity throughout their four years of cropping history. Runners are only allowed to develop to fill in spaces where plant loss has occurred.

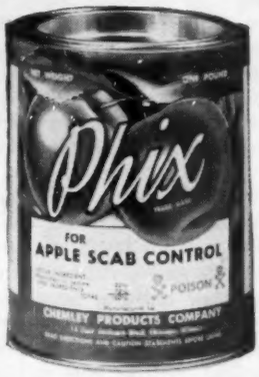
A few problems face our growers today. Available land is difficult to find and land values have soared. Tenants are becoming more difficult to find. Many tenants, after acquiring capital and experience, have started their own operations. Root rot problems and cyclamen mite cause serious losses at times. To date, growers must seek new land every four years. This new land must be free of tomato or potato history, as strawberry plantings will generally fail on such land, because of verticillium wilt.

Our most important project in Santa Cruz County is the search for an economical means of effective soil treatment which will permit our growers to replant the same land every four years and continue to obtain the most fabulous strawberry yields in the world. The End



Two types of picking carts developed and used in the Monterey Bay area. Carts hold either a freezer tray or fresh market tray, and are pushed ahead of strawberry picker down furrow.

Phix THE ANSWER TO YOUR SCAB PROBLEM



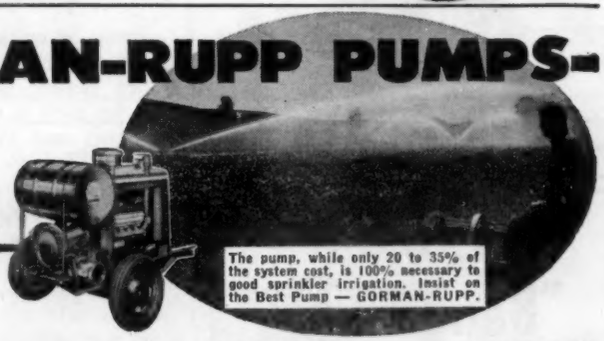
- **PROVEN**—in extensive experiment station tests *and* in commercial orchards.
- **HIGHLY EFFECTIVE**—as an eradicant on an after-rain schedule *and* as a protectant in combination with glyodin or captan.
- **CONVENIENT** and **ECONOMICAL** to use.
- **MIXES EASILY** with water.
- **COMPATIBLE** with most spray chemicals.
- **SHELF LIFE** unlimited in a dry location.
- **PHIX** is a dry, concentrated, organic mercury fungicide, usable in hydraulic or concentrate sprayers.

ASK YOUR DEALER FOR PHIX
Let **PHIX** solve your scab problem.
Write for a descriptive folder.

CHEMLEY PRODUCTS COMPANY
14 East Jackson Blvd., Chicago 4, Ill.

*Trade Mark Registered

GORMAN-RUPP PUMPS-ARE BEST!


The pump, while only 20 to 35% of the system cost, is 100% necessary to good sprinkler irrigation. Insist on the Best Pump — GORMAN-RUPP.

BEST because they are FIRST*

First with — Completely engineered units; pump is most efficient at engine's best range. Every model first proven in practical farm use . . . since 1946.

First with — Long-life check valve, with positive lever control on most models . . . since 1951.

First with — Removable end plate for quick access into pump without breaking connections . . . since 1941.

First with — Shaft seal under suction, virtually ending seal failures in the field . . . since 1941.

First with — Large drum-type fuel tank — three times usual size . . . since 1951.

First with — Overall operational safety — each unit has adequate protection controls. Standard since 1953.

*GORMAN-RUPP ORIGINATES — OTHERS IMITATE

BEST because they are PROVEN

Proven — in combined experience of more users than any other sprinkler irrigation pump.

Proven — by their builders — themselves practical farmers, including J. C. Gorman and H. E. Rupp.

Proven — in laboratories and on experimental farms — our own and those of a score of agricultural schools.

Proven — on special project and name farms — like famous Malabar as illustrated above.

YOU CAN BUY ON CREDIT!
F.H.A. Government Loan or through your local bank. For information without obligation write to . . . Gorman-Rupp Co.

the GORMAN-RUPP Co. MANSFIELD, OHIO

Longer

Service

Life

for Boxes, Hampers

Will unprotected field boxes and hampers steal some of your profits this year? Cellu-san gives picking containers L-S-L, Longer Service Life, and cuts repair and maintenance costs.

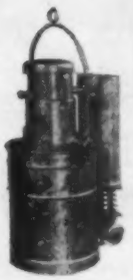
The fungicides in Cellu-san prevent wood-weakening rot as well as contaminating mold. The water repellents in Cellu-san keep just the right amount of moisture in the wood. Containers won't dry out, become brittle and break so easily, nor become waterlogged.

All this protection is yours for a few pennies per box with a simple 3-second dip application! Write today for HOW TO SAVE WITH CELLU-SAN, the first and only water repellent wood preservative developed expressly for the food industry.

Cellu-san

Division of Darworth, Inc.
Peach Lane, Simsbury, Connecticut
Western Office, P.O. Box 1422, Palo Alto, Calif.

Loosco "Bang" Bird Scarers



Used in 21 Countries for the Protection of

- Orchards
- Vineyards
- Small Fruits
- Corn
- Field Crops

Enquire

R. B. Rutherford
Box 2371
Hiler Branch P.O., Buffalo 23, N.Y.
DEALERS WANTED

HOW GUS AHRENS

A Successful Hoosier Grower

HANDLES HIS BERRY PATCH

GUS AHRENS has been growing strawberries for a long time down in southern Indiana near Huntingburg. He is what you can rightfully call a successful strawberry grower. Alert to new ideas, he keeps changing production practices to make the best of what he has. He grows only 10 acres, but he grows them profitably, and how he does it is worth knowing.

Gus Ahrens considers the choice of good, productive varieties a basic principle in successful berry production. Then comes soil fertility, water control, and other cultural practices.

The variety Tennessee Beauty now makes up three-fourths of Ahrens' acreage. It has proved the best yielder and the best shipping berry for him over the past few years. Formerly he grew the Blakemore. Robinson now ranks second in yield, with Temple coming in third. He has Vermilion on trial and it appears to produce very well. Premier decays badly and for that reason he is discarding it.

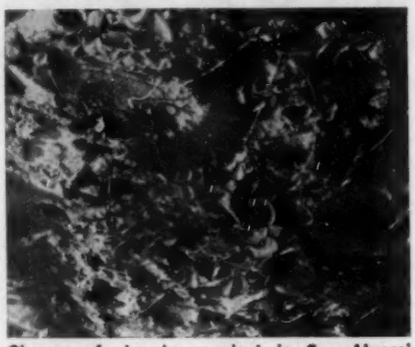
Soil Preparation

From a cultural standpoint, let's begin with the crop Ahrens plows under before planting berries. For this he uses a mixture of 1 bushel soybeans and ½ bushel of corn per acre, drilled in mid-May with 500 pounds per acre of 3-12-12 fertilizer. The rank growth is then plowed under in late August and the land seeded to spring oats. The oats make a heavy growth and are winter-killed, thus mulching the land very well over winter. In the spring the oat straw is either plowed under or disced in. If sufficient rain has fallen to start decay, then discing will do. Otherwise, plowing is necessary.

Fertilization practices vary from year to year. Last spring Ahrens applied 1,200 pounds per acre of 3-12-12 from mid-March to early April, just before setting plants. A section of the planting did not receive this fertilizer, but the plants appeared to grow as well as those fertilized. However, yields this year will give the final answer.

Broiler manure has proved the best fertilizer on Ahrens' berry land. Three years ago he was able to purchase 30 tons for $300 and applied 3 tons per acre before setting plants. Yield and quality of berries was tops the following harvest season.

Plants are set mechanically, spaced



Closeup of strawberry plant in Gus Ahrens' patch on July 8, showing spaced runners.

28 inches apart in 4-foot rows. This takes about 4,400 plants per acre. First cultivations are made with a rotary hoe after every rain, or once a week. Thereafter cultivations are made with a small tractor cultivator (Allis-Chalmers G), with hand hoeing to keep weeds out of rows. He also uses Crag Herbicide II at 2 pounds per acre to help in weed control. One or two applications are made in the early growing season.

When runners begin rooting, Ahrens and a group of boys he hires go over the planting once a week and space runners so that plants will stand about 6 inches apart. Rows are kept within a width of 22 inches. Then from late August until fall, no more runners are permitted to root. He uses an old-style hay rake behind a tractor to pull out late-rooted runners once a week. Well-rooted runners do not tear out.

Irrigates Berries

Ahrens has been irrigating berries for 15 years. He uses portable aluminum pipe with sprinklers. His water supply consists of a 1½-acre pond holding about 2 million gallons.

He uses a war surplus pump and motor which delivers 300 gallons per minute. Piping consists of a half mile of 3-inch main line and several 20-foot sections of 3-inch and 2-inch aluminum laterals. Thirty No. 40 Rain Bird sprinklers are fitted on 3-foot risers from the lateral pipes. This is enough to cover one acre per setting. Laterals can be inserted in the main line at 70-foot intervals. The field is normally laid out so that lateral pipes can be moved successively across the field as each acre receives its normal watering, from 1½ to 2 inches per application.

The average number of irrigations

per year has been three; once during picking season and twice during August, the rooting period of runners. Last year, however, was a dry one and Ahrens had applied three waterings by July 8, depleting his water supply in the pond by one-third.

He surveyed the possibilities of a well to replenish water in the pond and started drilling. He got enough water at 73 feet to throw 33 gallons per minute. While not enough for direct irrigation, it does allow Ahrens to pump water into his pond between irrigations.

After July 8, five more water applications were made to the Ahrens berries, and plants came through in fine shape. In fact, he was able to dig half a million plants for sale.

Grows Special Mulch

Ahrens likes to grow his own mulch, a special kind. In the spring he seeds 20 acres of sudan grass, using 35 pounds of seed per acre and 300 pounds of 3-12-12 fertilizer. The grass grows quickly and lush. When about shoulder-high he cuts and bales it, using an Allis-Chalmers baler that makes round bales. Thus he has a lot of good mulch that is free of weed seeds and grain. The round bales are rolled out in the winter and application of mulch is a fairly easy task. After the sudan is cut and baled, a top dressing of 50 pounds of ammonium nitrate per acre goes on. The second growth Ahrens harvests for his next year's seed. He also has a little extra to sell.

Migrant labor from other berry-growing states, as well as local labor, is employed during harvest. Ahrens often goes out into the berry sections of Arkansas to get the families of pickers he wants. He then rents unoccupied houses in the area around his farm for them during the picking season. Last year pickers received 7 cents per quart at the beginning and 10 cents at the end of the season. He plans to employ 10 pickers per acre.

Community Picking

Some community picking is done successfully. During a single day last year he had 500 pickers come in and pick their own fruit, over 8,000 quarts. A small amount of advertising in local papers brings them in. Ahrens loans them boxes and carriers for picking, but each must bring his own container for taking the berries home. Last year he charged them 15 cents per quart.

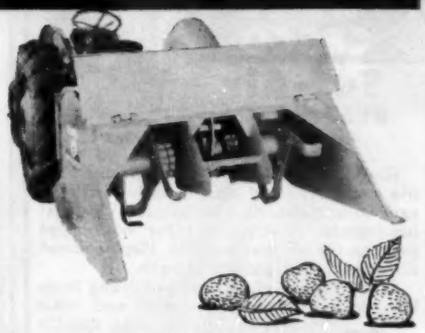
Yields over the years have averaged a good 200 crates per acre, with top yields of 500 crates. Marketing is done through the St. Anthony Fruit Growers Association under the Hoosier brand. His crop in 1954 averaged $12 per 24-quart crate. THE END

cut MULCHING time to a FRACTION

with New

SEAMAN ROTARY STRADDLE-ROW MULCHER

... for Strawberries and other Specialty Crops



Whatever your present mulching practice, you can be sure of tremendous savings in time and labor with the new SEAMAN ROTARY STRADDLE-ROW. You can mix in mulch and cut out between-row root runners in *one quick operation* — mix in fertilizer, too. Mulches to a full 48" width, with 16" center opening to "straddle" your plants, and deflector plates to prevent soil worked up by rotary tines from being thrown on plants. Helps you to better crops at less cost.

For Better Seed Beds, Greater Yield . . .

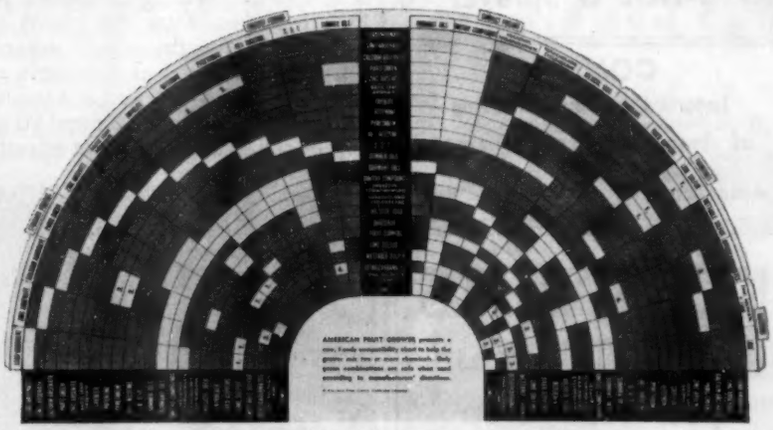
SEAMAN HEAVY DUTY ROTARY TILLIT

The TILLIT does a thorough tillage job usually in one tractor trip — mills, mixes-in cover crops, fertilizers — for perfect tilth, increased yield, earlier maturity, better prices. 3-foot tillage width; operates from P.T.O. of 2-3 plow tractor.

Write for complete information about the Straddle-Row Mulcher and the Seaman TILLIT.

SEAMAN-ANDWALL CORPORATION

344 N. 25TH STREET
MILWAUKEE 1, WISCONSIN



WHAT'LL IT MIX WITH?

1955 completely revised chart

That is the important question in economical spraying. The compatible nature of spray materials is mighty important in safe and effective spraying and AMERICAN FRUIT GROWER has produced an ingenious

SPRAY COMPATIBILITY CHART

which tells at a glance just what materials will mix safely. Printed in three colors, mounted on Bristol board paper, it is an accurate guide in the safe and successful mixing of all spray chemicals.

Better send for a copy—25c each; foreign single copies—75c each
Quantity Prices on Request

AMERICAN FRUIT GROWER,
Willoughby, Ohio.
Enclosed is 25c. Send Compatibility Chart to:

Name .....

Address .....

City ..... State .....

(Offer good only in U.S.A.)

If you spray insecticides containing
ALDRIN, DIELDRIN,
E.P.N., or PARATHION
You need a
CESCO
Saf-Air
RESPIRATOR
Approved by U.S. Dept. of Agriculture
for use in non-enclosed areas

Here is a twin cartridge respirator that fits perfectly, and comfortably, without excessive tightening of adjustable dual headbands. It stays put for hours and purifies the air you breathe. Replacement filters installed quick and easy.

Don't take a chance on poisoning from insecticides. Protect yourself and your workers. Order the CESCO Saf-Airs you need today at $5.75 each or three for $15.95. We pay postage.

$5.75 OR 3 for $15.95

Send check or money order to

CHICAGO EYE SHIELD COMPANY
2300 West Warren Boulevard · Chicago 12, Illinois

ROTO-HOE OFFERS
3 GREAT LINES OF POWER EQUIPMENT

Whatever your need, you can afford one of the models in the 1955 ROTO-HOE line. Complete rotary tillers from $105 to $228, all with low cost year 'round use attachments.

FREE CATALOG

New, in beautiful full color; sent on request, along with nearby dealer's name. Write today; learn how much easier gardening and lawn care can be with ROTO-HOE.

ROTO-HOE & Sprayer Co.
BOX 53 NEWBURY, OHIO

COMING
Important July Directory Issue
of American Fruit Grower
and
American Vegetable Grower

KEEP BEES
and you'll Increase
your Fruit Crop

It is now well known that both the quality and quantity of fruit crops are improved through the use of honeybee pollination. And you'll enjoy the crop of delicious honey you'll gather, too! Bees are fascinating and require very little care. Send for "Bees and Fruit," and our catalog. They are free!

THE A. I. ROOT CO.
Dept. 5003 Medina, Ohio

Use a CHEMICAL HOE FOR

Recommendations for treating berry fields in the NORTH

By R. F. CARLSON
Michigan State College

WEEDING strawberries and raspberries isn't the hard job it used to be. Today, much of the work can be eliminated by using chemical weed sprays, thus also saving up to 80 per cent in labor cost.

Part of the weed problem in berry plantings in the North can be solved by advanced planning. Working the soil a year or two before planting, incorporating cover crops, and destroying weeds before they "go-to-seed" will reduce the weed population and also provide an ideal condition for plant growth and high yields. However, the weed seeds remaining in the soil (an estimated 3,000 pounds per acre), along with weed seeds "blown in," furnish the potentialities for weed growth during the life of the planting. Here is where the timely use of weed killers and mechanical cultivation fits into the weed control picture.

Weeds in Strawberries

The recommended practice today is to use SES (Crag Herbicide No. 1) a few days after the plants are set and before the weeds emerge. This material used at 3 pounds per acre on a "light" soil and at 4 pounds on a "heavy" soil will control 90 per cent of the weeds. It is not effective on weeds that are up, and should be used only as a soil application. The strawberry plants are not affected at these rates of SES. Row applications are the most economical, so 3 pounds of SES sprayed in an 18-inch band would cover 2 acres of strawberries planted in 36-inch rows.

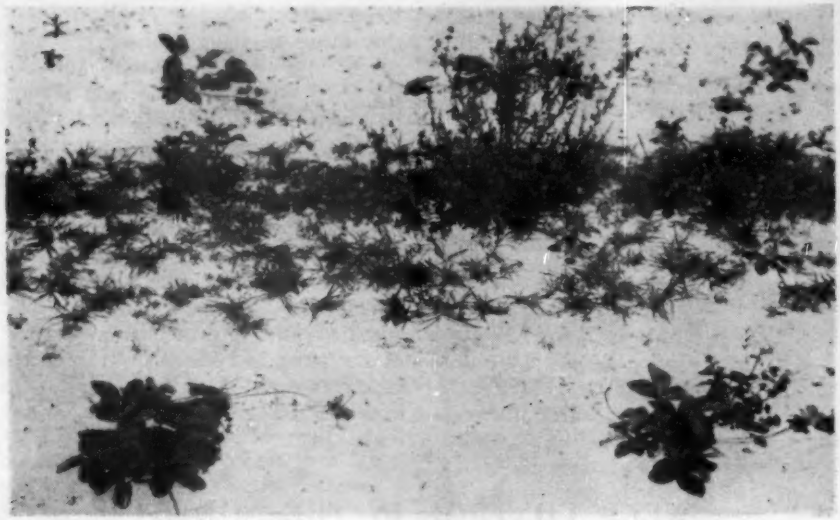
Satisfactory weed control with SES depends on soil moisture and temperature. In a dry soil SES is not converted into the active 2,4-D-like weed killer, so it is important to spray when the soil is moist. If the soil is moist at planting time, it is wise to apply the chemical rather than wait a week or so. When the soil is dry, irrigate or wait for rain and then spray. If weeds emerge in the meantime, use ½ pound of 2,4-D per acre on small weeds instead of SES. Both of these materials are more effective under warmer soil and air temperatures of late May than in early April in the North.

The herbicide SES can be used as needed in the new planting; but since the chemical tends to prevent rooting of new plants, it is best not to use it in the period 3 or 4 weeks prior to runner production. After 4 or 5 runners are established around the mother plant, the herbicide can be used again to kill germinating weed seeds which become a problem during August and September.

(*Continued on page* 54)

Chloro-IPC was used here for 2 years for grass control. Berry yields were increased by 30 per cent. Note grasses in unsprayed section of row.

CONTROLLING WEEDS



Effective control of spring and early summer weeds is obtained with herbicide sprays at plant setting time. Front and back rows sprayed; middle row unsprayed.

Recommendations for treating strawberries and raspberries in the SOUTH

By L. L. DANIELSON
Virginia Truck Experiment Station

FIRST of all, let's have a look at the weed problem in perennial small fruit crops in the South. Warm days of early spring are accompanied by a flush of chickweed and henbit weed. This is just the beginning. These are followed by a series of different weed types emerging at intervals throughout the summer, fall, and winter. These types include such weeds as crab grass, bullgrass, annual bluegrass, Italian rye grass, knotweed, pigweed, lamb's quarters, carpet weed, purslane, and some others.

To combat this year-round weed problem, you must think in terms of an organized year-round control program if you are going to be successful in keeping production costs to a minimum. Fortunately, much of this control program can now be carried on with chemical sprays. It will still be necessary to make an occasional field inspection, armed with a hoe, to remove a few weed types not killed by the chemicals now in use.

The suggestions made here for chemical weed control should be used only on a small trial basis until experience shows that they are suitable for general use under the climatic conditions, soil conditions, and the farming methods of a given locality.

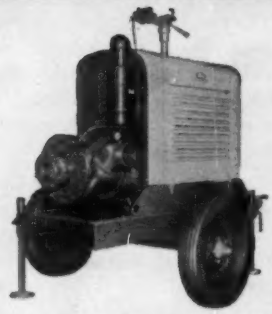
Strawberry Weeding Program

A basic spray mixture for repeated use as a soil application to kill germinating and seedling stage weeds throughout the year is prepared by dissolving 2 pounds of Crag Herbicide No. 1 in 50 gallons of water and adding two quarts of chloro-IPC weedkiller. This spray mixture is applied at the rate of 50 gallons per acre. During periods of the year when the mean temperature is below 60° at time of spraying, the amount of chloro-IPC may be reduced to 1 quart to 50 gallons of spray.

Apply the first spray of the above mixture about 10 days to 2 weeks after planting new berries. Cultivate, hand weed if needed, and repeat the spray in late June and in the fall at the time of germination of chickweed and henbit. A late winter application while the berry plants are still dormant may be used for control of spring weeds which give trouble during picking. All sprays of this mixture must follow clean cultivation or hand weeding to be most effective. A soil moisture level high enough to insure quick weed seed germination is necessary to get good results. Do not apply

(*Continued on page* 54)

CARVER
Irrigation
PUMPS



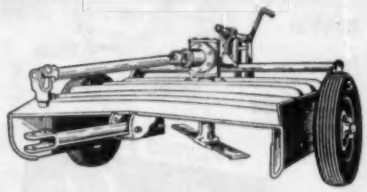
Here is your best buy for better performance in any irrigation system . . . whether it is sprinkler, open ditch or perforated pipe.

CARVER Pumps are portable, compact, economical. Capacities up to 1500 G.P.M. For gasoline engine, Diesel, electric motor or belt drive.

Write for complete information
Ask for Folder 540

CARVER PUMP CO.
1440 Hershey Ave.
Muscatine, Iowa

The Market's Best
ALL PURPOSE
CUTTER



S-2 WILL REDUCE PRUNINGS TO QUICK-ROTTING LITTER

Equipped with our exclusive Dagger Blades we believe our S-2 Rotary Cutter will cut up orchard prunings better than any machine on the market. The Dagger mounts on each end of the S-2's 57-inch Spring Steel Blade, and enables the cutter to get the prunings held down by the tractor's or cutter's wheels. If you need a cutter for any job look at Caldwell's FIRST. See your dealer or write:

E. L. CALDWELL & SONS
CORPUS CHRISTI, TEXAS

The

Complete Corkboard

INSULATION SERVICE

From engineering design to complete erection, United Cork Companies offers complete service on B.B. (Block-Baked) Corkboard through its chain of branch offices from coast to coast.

Each installation of United Cork Companies' B.B. Corkboard is *specifically* planned for the requirements of the individual fruit storage area. And each installation is followed up by United Cork Companies' engineers to assure full satisfaction to the fruit grower.

You are invited to discuss your low-temperature insulation requirements with us.

UNITED CORK COMPANIES

DEPARTMENT I-10

KEARNY, NEW JERSEY

BRANCH OFFICES IN PRINCIPAL CITIES

for effective spraying and trouble-free performance

SPRAYING SYSTEMS

GunJet®

SPRAY GUNS

heavy duty guns for pressures from 30 to 800 lbs.

Ruggedly built for high pressures and rough use. Adjustable spray. Hardened stainless steel orifice tips. Full range of sizes. May also be used with TeeJet interchangeable orifice tips. HOW SOLD . . . supplied by original equipment manufacturers and dealers everywhere. For spray guns that really do the job . . . ask your dealer to show you GunJet Spray Guns. Write for Bulletins 65 and 69.

SPRAYING SYSTEMS CO.

3278 Randolph Street • Bellwood, Ill.

WEED CONTROL IN THE SOUTH

(*Continued from page* 53)

any weed sprays during flowering, fruiting, or runner rooting of strawberry plants.

Occasionally, a combination of various winter weeds may get started and develop a considerable growth before it is possible for you to get into the field. Here you may use 2 gallons of Sinox PE or Dow Premerge herbicide in 50 gallons of water per acre for a quick kill of small chickweed and henbit weed during the winter dormant period of the berry plants. This spray will not kill a heavy growth of these weeds.

Raspberry Weeding Program

A spray mixture prepared by dissolving 2 pounds of Crag Herbicide No. 1 in 50 gallons of water and adding 1 quart of chloro-IPC weedkiller may be used at the rate of 50 gallons per acre, in the fall after the raspberries have become dormant, for control of chickweed and henbit weed. Early spring application of the same mixture before the new canes emerge will control many of the spring weeds. The field should be clean cultivated or hand weeded before spraying.

After the canes are up and established in the spring, sprays of 4 pounds of Crag Herbicide No. 1 in 50 gallons of water per acre may be used as needed following cultivation during the growing season. The spray should be directed to the base of the plants to avoid the foliage as much as possible. Best results are obtained on moist soil with all of these chemicals. THE END

WEED CONTROL IN THE NORTH

(*Continued from page* 52)

Mechanical hoe equipment, including the wiggle hoe, serves to eliminate many of the small weeds, especially in the first year planting. Such equipment also helps condition the soil, facilitating setting of runners.

The fruiting berry planting can be sprayed early in the spring with 1 pound of 2,4-D per acre if there are small weeds present or with 3 pounds of SES if there are no weeds. In the North the practice of mulching varies with the location. If the berries are mulched in the fall, apply the chemical a few days after the mulch is removed; if spring mulched, spray before mulching; or if not mulched at all, spray before any flower clusters are showing.

The strawberry plants are more tolerant of weed sprays at certain times of the year. Right after the last picking is an ideal time to use 2,4-D at 1 to 2 pounds per acre since the plants are almost dormant at that time. The spray is most effective if the planting is first mowed and the rows narrowed to the desired width.

Quack-grass in strawberries is eliminated in the fall prior to spring planting by working the soil in September and applying 15 pounds of TCA per acre. Six weeks later work the soil again and spray another 15 pounds per acre on the same area.

The Chickweed Problem

In many of the northern states the common chickweed grows profusely in strawberry plantings during fall, winter, and spring, reducing berry yields by one-half or more. Chloro-IPC is very effective against this weed under colder conditions. In Michigan, chloro-IPC used at 2 to 3 pounds per acre after October 20 has given nearly complete control of chickweed by spring without reduction in berry yields. The same chemical will also control biennial bluegrass which begins to grow in September.

The dinitro herbicides are also effective against some of these fall weeds. They should be used when the strawberry plants are strictly dormant, and under warm temperatures.

Weeds in Raspberries

A well-managed planting of either red, black, or purple raspberries should last for 10 to 15 years. In most plantings, however, weeds and grasses soon become established in the row, harboring diseases and insects, and sap moisture and nutrients from the raspberry plants, reducing the productiveness and life of the planting by half. The use of herbicides can actually increase yields by one-third and prolong the life of the plantings.

Annual applications of 2,4-D, SES, and chloro-IPC will keep raspberries free of broad-leaved weeds and grasses. While raspberry plants are tolerant of these materials, they should not be used when the reds are suckering or when the blacks and purples are being tip layered. For small weeds use 2,4-D at 1 pound per

acre, and if the planting is free of weeds, use SES at 3 or 4 pounds per acre as a weed preventive measure. Any one of these herbicides eliminates the weeds for 4 to 5 weeks. They can be used again as needed during the growing season.

Quack-grass, June-grass, biennial bluegrass, common chickweed, peppergrass, and other weeds that show up in the fall in raspberry plantings can be controlled with chloro-IPC at 8 pounds per acre. The quack-grass is not completely eliminated with one application, but it is subdued and finally eliminated with annual use of this material in October or in early spring.

Dalapon is another available herbicide which is specific for grasses when applied to the active grass foliage. It was used in recent tests at 5, 8, and 10 pounds per acre in the fall on red raspberries with satisfactory grass control and no injury to the plants. Dalapon is now suggested for use in the fall or early spring at 5 pounds per acre as a directional spray to the green grass foliage at the base of the canes.

Herbicide Spray Equipment

The herbicides mentioned above can be applied with sprayers that will deliver enough volume, 40 to 80 gallons per acre, for uniform distribution of the chemical. Excellent boom weed sprayers of various sorts are available. THE END

A new folder, *Chemical Weed Control in Small Fruits and Orchards*, has been published by Michigan State College. It describes the use of several herbicides in strawberries, raspberries, grapes, blueberries, currants, gooseberries, and tree fruits, and explains the conditions most favorable for satisfactory control of weeds with chemicals. A definite weed spray schedule is given for strawberries and raspberries. Write to Co-operative Extension Service, Michigan State College, East Lansing, Mich., and ask for Extension Folder F-190.

The new Burgandy raspberry, now being patented, shows promise of becoming an outstanding purple raspberry variety. Burgandy is a chance seedling discovered at the Loretto Brothers Fruit and Plant Farms, Box 6, North Collins, N.Y. They report that in tests throughout the country the past 6 years it has performed better than any other purple raspberry variety. Burgandy is characterized by its upright habit of growth and resistance to disease and adverse weather and soil conditions. Fruit is large, sweet, firm, and attractive. It remains firm and flavorful after processing.

★ Choice of latest overhead valve Water-Cooled Engine or Heavy Duty Air Cooled Engine

★ Exclusive "rolling-action" mechanical tank agitator mixes material thoroughly, assures uniform spray strength at all times. No cavitation.

★ New—greater power and air volume

ILLUSTRATED: MODEL 550

★ New—larger tank capacities

See the newest models of the famous time-tested BES·SPRAY Line ...ask your dealer or write for literature

BESLER CORPORATION

4053 Harlan St.—Emeryville, Oakland 8, Calif. • Eastern Assembly, Davenport, Iowa

Also see the new BES·BLO Blower Attachments for '55

LEO ANTLES says:

"The short crops of 1954 again show that the most expensive thing in orcharding is a short crop. You can guard against poor yield by *Pollinating*. Don't take a chance. During the 1954 season, Glenn Wells, Cashmere, Washington, earned $50.00 for each $1 spent for pollen.

POLLINATE FOR PROFIT

We prepare pollens for use by all methods:

- HAND BRUSH
- HAND DUSTER
- AIRPLANE
- BEEHIVE INSERTS

The new hand pole duster with funnel attachment has proven highly successful on *sweet cherries by Idaho growers*. Some also use the beehive inserts at the same time with the idea of gaining greater redistribution of pollen. We have received word from careful research men stating that they have obtained excellent returns by the use of the beehive insert.

Phone or Write us for Information

L. C. ANTLES

Fruit Tree Pollen Supplies Co.

P.O. BOX 1243, WENATCHEE, WASH. • Phones 2-2905 or 2-6052

WITH THE FRIDAY HOE you can cultivate an acre in an hour.

Designed for Blueberries, Grapes, Currants, Gooseberries and other brambles. The hoe is trailer mounted, driven by 7½ HP Wisconsin engine. A Vicker's hydraulic pump and mechanism pull the rotating cultivating head in and out of the row.

Can be pulled easily by any tractor as hoe is self powered.

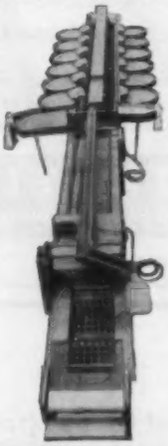
This is the answer to your hoeing problem.

Write for descriptive folder.

FRIDAY TRACTOR CO.
HARTFORD, MICHIGAN

THE BARTLETT APPLE GRADER

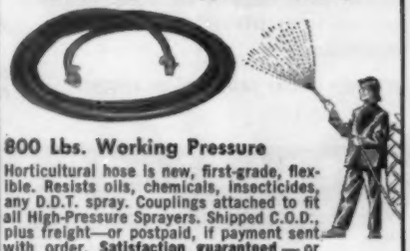
"The Bartlett No. 2-12 Apple Grader"—an excellent grader for packing quality fruit. This machine makes six sizes Extra Fancy and six sizes Fancy. A single belt for C grade and a cull belt. Rubber covered throughout. Write for folder.



Manufactured by
N. M. BARTLETT MANUFACTURING CO. LTD.
BEAMSVILLE
ONTARIO, CANADA

High-Pressure SPRAY HOSE

Special value—shipped immediately



800 Lbs. Working Pressure

Horticultural hose is new, first-grade, flexible. Resists oils, chemicals, insecticides, any D.D.T. spray. Couplings attached to fit all High-Pressure Sprayers. Shipped C.O.D., plus freight—or postpaid, if payment sent with order. **Satisfaction guaranteed** — or your money refunded.

CHOICE OF LENGTHS	INSIDE DIAMETERS ¾"	½"	¾"
25 ft.	$ 9.00	$10.25	$15.75
50 ft.	16.50	19.00	29.50
75 ft.	24.00	27.75	43.25
100 ft.	31.50	36.50	57.00

Agricultural Rubber Products Corp.
61 Barclay St., P.O. Box 496, New York 7, N.Y.

When writing advertisers please mention
AMERICAN FRUIT GROWER

SPRAYMEN use
TOWER'S
FISH BRAND
Garments for complete protection from wet · grease oil · acids

Available in NEOPRENE treated fabrics. TOWER'S suits, coats, hooded shirts, and hats afford the utmost in comfort, durability, roominess, and overall protection to spraymen.

Sold by all Good Dealers
Write for Catalog AG

TOWER'S FISH BRAND
A. J. TOWER CO.
BOSTON, MASS.

PROTECT YOUR EYES
while

- **Spraying**
- **Pruning**
- **Repairing Equipment**
- **Picking**

only $2.50

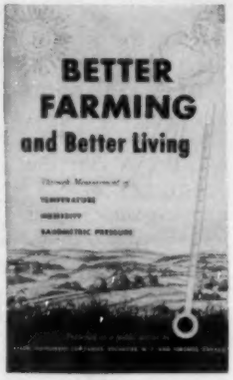
Comfortable to wear. Precision made to last many years. Unbreakable lenses. Order your pair or pairs today.

Exclusive sales territories available for dealers and distributors

Write to
The Kimball Safety Products Co.
9310 Wade Park Avenue
Cleveland 6, Ohio

NEW FOR YOU

Weather Wisdom



Rain or shine, snow or thaw often makes the difference between profits and loss. Today with new equipment and chemicals which must be used at precise temperatures, we growers must be weather - wise. This, of course, means modern, accurate weather equipment. The best published information I've ever seen on these important instruments is now offered free to our readers. Over 24 pages of well-illustrated material can be yours by writing Wally Lockheed, Taylor Instrument Company, 95 Ames St., Rochester 1, N.Y.

Do It Right

If you are going to put in an irrigation system, plant a new block of trees, put in a fence or build a new orchard building, insure accuracy with an easy-to-use Mikron transit. With a precision optical system, it sells for only $205 and comes equipped with a beautiful hardwood carrying case, strap, plumb bob, magnifying glass, screw driver, adjusting pin, sunshade and tripod. It is insured and guaranteed for one year. Write Mikron Instruments, Inc., 1966 E. Walnut St., Pasadena, Calif.

Save Your Back

Not long ago I was amazed to see a motorized wheelbarrow being controlled

- **ANTIBIOTIC SPRAY**
- **PRECISION EQUIPMENT**

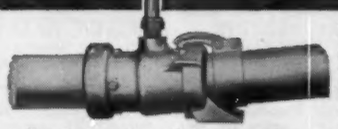
with finger tip action by a leading grower. Powered by a 2½ h.p. air-cooled motor, the unit handles 400 lbs. with ease. Throttle and clutch controls are mounted on the handles. The drive wheel is semi-pneumatic with a thick tractor tread, which makes operation over the orchard floor easy and sure. The machine is easily maneuvered, and the problem of capsizing is eliminated. Dumping or unloading is a finger tip operation. Why not write William Roulette, Jr. at the Worthington Mower Company, Stroudsburg, Pa.

Precision Planting

The new Easy-Way Post Hole Digger embodies several much-needed improvements. A soil compensator bit first drills a smaller hole than the auger itself to prevent corkscrewing in loose ground and insure clean, sharp digging in hard ground. A protective shear-pin in the universal drive shaft can be replaced in seconds. The auger is firmly attached to the ductile iron gears, and the shear-pin gives far greater protection to the gears. Additional double flighting on the auger makes it possible to dig cleaner holes. Reasonably priced, the auger is being handled by most of the leading tractor companies. Write Jos. Haire at Standard Steel Works, North Kansas City 16, Mo.

Spotless Cherry Leaves

Many cherry growers are controlling cherry leaf spot with one of the spectacular antibiotics known as Actispray. Actispray has been vigorously tested for the past six years not only in the laboratory but in commercial orchards. It comes in tablet form, and one tablet to 100 gallons of water is sufficient for eradicative action. Government registration allows it to be applied four days prior to harvest. There is no visible residue at this late date nor is fruit flavor affected. Heavy rainfall one hour after application will not reduce effectiveness, and Actispray is compatible with other orchard chemicals except lime or other alkaline materials. Write R. C. Byce, The Upjohn Company, Kalamazoo, Mich.

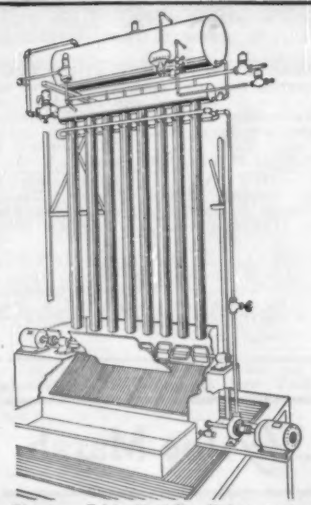


Easy to connect pipe. Push ends together and they lock. Make water tight seal.

Improve quality and yield any year. Water an acre or a square mile quickly and easily with OK Champion Sprinkler Irrigation—the "Quality and Pioneer Line." Quick connecting, water-tight couplings. Couple and uncouple pipe from standing position—no stooping. Entire system quickly repays cost. Makes extra profit for years.

Send for FREE Circular—Champion Corporation, 4739 Sheffield Ave., Hammond, Ind.

OK CHAMPION *Irrigation Systems* Layout Plans FREE

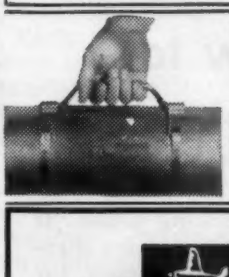


The new Frick Shell-Ice Maker saves time, money and labor.

You Harvest Bigger Profits With a Frick Shell-Ice Maker

Shell-Ice is ideal for shipping fruits and vegetables, icing poultry, bottled milk, and for use in hotels, restaurants, industrial plants, etc. Shell-Ice is frozen on vertical tubes by direct-expansion ammonia or Freon, in thicknesses of ⅛" to ½", and is broken by spinners to size desired. No snow, scrapings or waste: no scale, no cleaning. Shell-Ice is dry and hard, and with suitable water is clear. This ice maker is fast, efficient, and automatic. All-steel construction: no delicate parts. Requires very small floor space. Sizes ½ to 30 tons capacity. Dozens already in service. Write for Bulletin 54.

DEPENDABLE REFRIGERATION SINCE 1882
FRICK CO.
WAYNESBORO, PENNA. U.S.A.



Reduce Irrigation Pipe Handling Cost With
Kellam Karrier
One Man Does Work of Two With This Handle
Kellam Co.
Biscoe, N. C.

• GROW ROOTS ON BRANCHES IN MID-AIR
TURN EXTRA BRANCHES INTO VALUABLE TREES & SHRUBS
EASY TO DO — SUCCESS GUARANTEED
Proven Branch Rooting Pack for 10 Branches
$1.00 Each Postpaid — 3 Packs for $2.00 — 10 Packs for $5.00
ROBBINS GARDENS A-5 P. O. Box 1363 Jacksonville, Fla.

GET FULL PRODUCTION
From Your Trees this Season
By Applying "Best Quality" Fruit Pollen

Just a Reminder . . .

Now is the time to order your pollen supplies. Order the Improved EZ Pollen Applicator and pollens prepared for all methods of application. There are four methods of applying Pollen: Hand brush—Hand Duster (our EZ Pollen applicator)—Air Blast Sprayer—Airplane.

Choose the method best adapted to your needs and help yourself to increased profits and reduced production costs through artificial pollination.

Information and price lists available for you.

Write, phone or wire

Mina T. Firman

Pioneer Distributor and Collector

114 S. Main St.
East Wenatchee, Wash.
Phone NOrmandy 2-2459

126 Highland Ave.
P.O. Box 996
Chelan, Wash.
Phone 3-W

Viability Tested
APPLE, CHERRY, AND PEAR POLLEN AVAILABLE FOR ALL ACCEPTED METHODS OF APPLICATION.

OPPORTUNITY ADS

Only 25c a word for one-time insertion; 20c a word for two-time insertion; 15c a word for four-time insertion—CASH WITH ORDER. Count each initial and whole number as one word. Address AMERICAN FRUIT GROWER, Willoughby, Ohio.

BANTAMS

DARK CORNISH BANTAMS—BEAUTIFUL Midgets, Super Meat Breed. Like eating Quail. Hatching Eggs. Stock. Illustrated Circular. WILL SCHADT, Goshen, Indiana.

BEES

BEES INCREASE SEED AND FRUIT yields, require little attention. Big Profits. Stingproof equipment. Factory prices save 25%. Free advice from experienced bee men. Free catalogue. WALTER T. KELLEY CO., Dept. F, Clarkson, Kentucky.

BUSINESS OPPORTUNITIES

GROW MUSHROOMS. CELLAR, SHED. Spare, full time, year round. We pay $3.50 lb. We paid Babbitt $4,165.00 in few weeks. FREE BOOK. WASHINGTON MUSHROOM IND., Dept. 127, 2954 Admiral Way, Seattle, Wash.

CIDER PRESSES

CIDER PRESSES AND ACCESSORIES. SUPplies and repairs. W. G. RUNKLES' MACHINERY CO., 185 Oakland St., Trenton, N. J.

FOR SALE—EQUIPMENT AND SUPPLIES

GOOD USED FARM CONTAINERS—SPLINT handle baskets, bushels, boxes, hampers, bags, nailed and wirebound crates. Truckload or carlots. Call or write ZELVY BROS. CONTAINER CO., 2005 Orange Ave., Cleveland, Ohio.

1—1953 BEAN SPEED SPRAYER. BARGAIN. 1—1947 Bean Speed Sprayer. Good condition at $1,000.00. 1—Model 48 Bean Sprayer. Demonstrator. 1—35T Bean Sprayer. 1—No. 55 Bean Royal Pump. Demonstrator. 1—No. 35 Bean Royal Pump. Good condition. 3—PTO Sprayers. CORY ORCHARDS, Cory, Indiana.

BUY SURPLUS FARM TOOLS. MACHINery, tractor, truck from Government. List $1.00. BOX 213AM, East Hartford 8, Conn.

NEW AND SLIGHTLY USED PORTABLE sprinkler irrigation systems. Also dealer franchises available in Wisconsin. ERIC FRANKE, Route 5, Sturgeon Bay, Wisconsin.

SPECIAL BARGAIN — MODEL 36L SPEED Sprayer. 2 years old, like new. Aircraft tires. In stock full line orchard supplies. Write for catalog. FRUIT GROWERS OF CHESTER COUNTY, INC., West Chester, Penna.

FIVE USED JOHN BEAN SPEED SPRAYers: Including 1954 Model 36W demonstrator, also large selection of reconditioned high pressure sprayers and blower attachments. RILEY'S—Phone 425—Hart, Michigan.

BERRY BASKETS, CARDBOARD, QUARTS, Pints. 100—$1.35, 12 pint flats 10¢, quarts 15¢ F.O.B. Rockford, Michigan. RONALD PENNINGTON.

1—1953 MODEL 29-L SPEED SPRAYER; 1—Bean Speedaire; 1—Aqua-Jet Blower; 1—Bes-Blo; 1—Niagara Duster; a quantity of new wire-lined 2" Suction Hose, 14 ft. lengths with 2" pipe fittings. Bargain. 1—Niagara Grader; 1—Myers PTO Sprayer. CORY ORCHARDS, Cory, Indiana.

2-BEAN 35 GPM PTO SPRAYERS, NIAGARA One Man Liqui-Duster, Bean 36-W Speed Sprayer, other used sprayers 2, 3, 4, 15, 20, 35, 60 GPM, 500 Gal. Supply Unit W 110 GPM Pump, Bean Rollamulcher, Miller Robinson Power Pruners. All units completely reconditioned. THE HOLLANDIA SUPPLY CO., South Vienna, Ohio, Roger C. Aukeman, Phone 6-4322, Res. 6-4284.

TELL EXACTLY HOW RIPE YOUR FRUIT is by measuring the sugar content with a refractometer. We have for sale one used Bausch & Lomb hand refractometer range zero to 60% equipped with temperature correction thermometer, perfect in every way. Costs new $165.00. Will sell for $75. REGINALD KIEFER, Fairport, N. Y.

CLOSING OUT ALL ORCHARD EQUIPment and supplies. Hardie Sprayer. Trescott Grader, Basket Turner, Ladders, Baskets, Packing Rings. ORCHARD HILLS FARMS, Vevay, Ind.

USED BUFFALO TURBINE—USED THREE seasons, excellent condition, concentrate spraying or dusting. Wisconsin Motors—Reconditioned, priced low for quick sale. Model VE 4, Model VP 4. HAROLD'S FARM IMPLEMENTS, Hart, Michigan..

HARDIE SPRAYER, 35 GAL. PUMP, 500 gal. tank, 35 H.P. motor. Demonstrator. New condition. Reasonable. CARL JONES, Oakdale, Pa.

CONTINUOUS PRESS — CAPACITY 2400 lbs. hr. Like new. Cost $1450.00. Will sacrifice. GEM CITY VINELAND COMPANY, Nauvoo, Illinois.

MYERS PTO SPRAY RIG, 500 GALLON tank, Mt. Gilead hydraulic cider press 28" rack, Trescott grader for peaches, apples. 5157 GODOWN RD., Columbus, Ohio.

FOR SALE—ORCHARDS

60 FERTILE ACRES: 35 ACRES BEST varieties apples, 8 acres Norton and Ives grapes, balance farm land. Within city limits Fort Madison, Iowa. Bargain to close estate. Write HEITZMAN, Fort Madison, Iowa.

FOR SALE—YOUNG ORCHARD. 60 ACRES of young orchard. Just now coming into production. Must see to appreciate. Contact or see HAROLD HUSTON, Homer, Mich.

GEESE

PILGRIM GEESE—LOW PRICES HATCHing eggs. Illustrated circular. 20 page goose booklet free. GOSHEN POULTRY FARM, G-10, Goshen, Indiana.

MISCELLANEOUS

FLOWER BULBS. CHOICE COMMERCIAL flower bulbs for commercial flower growing or resale. Descriptive lists and information free. Write for current list now. REGAL BULB CO., Holland, Mich.

BERRY BOOK: "THIRTY YEARS OF BERries". Raspberries and Strawberries. 84 pages, price $1.00 P'paid. ROY TURNER, 315 Livingston St., Peoria, Ill.

WINES: MAKE YOUR OWN FROM GRAPES, raisins, berries. No special equipment needed. Printed directions, 25¢ coin. TIMBERLAKE ENTERPRISE, Box 1401, Denver 1, Colorado.

NATIONALLY ADVERTISED REBUILT vacuum cleaners! $39.95 FOB Youngstown, Ohio. World famous models with a complete set of attachments: 1. Rug Nozzle, 2. Floor Brush, 3. Upholstery Tool, 4. Crevice Tool, 5. Dusting Brush. Including completely rebuilt motor with new parts. Also hose, dust bag, filter, 20' cord. Satisfaction guaranteed or your money back. Order yours today. Write BOX 141, AMERICAN FRUIT GROWER.

REVOLUTIONARY SWISS GRAFTING WAX. Fruit growers of Washington and Oregon report highly satisfactory results from use of Gashell grafting wax because: Heating not necessary. Use as is. No melting on hot days. No cracking in cold temperatures. Produces firmly adhering air/watertight covering. Fast work possible. Stretches with growth. Storage unlimited without spoilage. Carton contains ten one-pound pads @ $12.50 per carton prepaid, introductory price. Discount to distributors. RUDOLF O. ZORN, 542 S. Broadway, Los Angeles 13, Calif.

PEAFOWL, SWANS, PHEASANTS, GUINeas, Bantams, Waterfowl. Thirty varieties Pigeons. JOHN HASS, Bettendorf, Iowa.

SWEET POTATO PLANTS, NANCY HALLS, Portoricans. Prompt shipments. Carefully packed. Planting guide free. 200, $1.00; 500, $1.75; 1000, $3.25; 5000, $15.00. TAYLOR PLANT CO., Gleason, Tenn.

TRADE MARKS

NATIONAL TRADE MARK COMPANY, Munsey Building, Washington 4, D. C.

WANTED TO BUY

PURCHASE OR PARTNERSHIP, ESTABlished orchard, central New York. BOX 144, AMERICAN FRUIT GROWER, Willoughby, Ohio.

Advertisement

From where I sit ... *by* Joe Marsh

Learn How to Pull Together

Saw a kid go by the *Clarion* office on a brand-new coaster wagon yesterday—and it reminded me of when my brother and I were about forty years younger.

Our folks weren't poor, but there wasn't enough to buy *two* wagons for Christmas. We got one between us. Dad made a rule that we each could have it for a week—but the boy with the wagon was responsible for keeping the kitchen wood-box filled.

Seemed a bargain to Bud and me—at first. But soon we discovered it was no more fun playing alone than working alone. It wasn't long before we were sharing the wagon in return for sharing the chores.

From where I sit, you can't enjoy a privilege yourself if you're going to deny it to others. There are some folks who want the right to enjoy *their* favorite beverage—but would deny me *my* right to an occasional glass of beer. I doubt if such people get their full "share" of happiness, though.

Joe Marsh

Copyright, 1955, United States Brewers Foundation

CONSTRICTION DISEASE

(*Continued from page* 17)

period in early spring and again in late summer or early fall when conditions are especially favorable for their development.

The cankers formed in spring may girdle the twigs during summer, but those forming toward the end of the growing season usually do not girdle the shoots until the following spring.

At least two different fungi are reported to be the cause of constriction disease. Since infections presumably occur only through wounds or natural openings (leaf scars and bud-scale scars) the true role of the fungi found associated with the cankers has been difficult to evaluate.

Control.* Spray materials commonly used for brown rot, scab, and bacterial spot do not prevent canker formation. Recently one investigator reported promising results through the use of organic fungicides (ferbam, dichlone, and captan) coupled with a program of removal of all infected branches. Sprays had to be applied until the middle of October to make the program effective since new infections can occur up to this time.—*John C. Dunegan, USDA.

New Sensational high producing Burgandy Raspberry Plants. New Shuttleworth Black Raspberry Plants. New Lindalicous and Can-all Strawberry Plants. New Virus free Premier, Sparkle and Robinson Strawberry Plants. Write for free Catalog.

Loretto Brothers Sunny Hill Nurseries
Box 6, North Collins, New York

NEW! VIRUS-FREE STRAWBERRY PLANTS

Greatest advance ever made in the Strawberry industry. Original stock developed by the U.S.D.A. in co-operation with the State D.A. available to the public for the first time in 12 leading varieties. Supply limited. Write for free color catalog.
Tennessee Nursery Co., Box 50, Cleveland, Tennessee

STRAWBERRY SPECIALISTS

70 kinds, New Giants 3 inches across, New everbearer, Novelties, All standard varieties, Nice plants.

PENNHOLM FARMS
CARPENTER OHIO

RED RASPBERRIES SEPTEMBER and DURHAM

	25	100	1000
No. 1	$6.10	$18.50	$110.00
Transpl.	6.95	22.50	165.00

Other varieties and Clark Dwarf apple trees—Priced on request
WHEELOCK WILSON NURSERY
Box 421 Marshalltown, Iowa

Evergreen Lining-Out Stock

TRANSPLANTS and SEEDLINGS

Pine, Fir, Spruce, Canadian Hemlock, Arborvitaes, in variety. For growing Christmas trees, Ornamental landscape, Hedges, Windbreaks, Forestry. Quality stock low as 2c each on quantity orders. Write for price list.
SUNCREST EVERGREEN NURSERIES, Dept. AFG, Box 305, Homer City, Pa.

BUSHTYPE EVERBEARING STRAWBERRY

12 Divisions	$3.00	50 Divisions	$ 9.50
25 Divisions	$5.00	100 Divisions	$18.00

Ideal under irrigation. No trouble with runners. High yielding. Easy to pick. Large uniform size. Excellent flavor. Circular on request.
PAULSEN NURSERY - - Minden, Nebr.

HIGH PROFIT STRAWBERRIES

Mr. T. Kasuga, originator of the 20TH CENTURY which is tops in production and consumer acceptance, has just released his new patented variety, the KASUGA, with exceptional quality and taste. The berry that is making high profits in the West. Write today for descriptive folder and special price list to AFG readers.
KASUGA'S ICHIGO NURSERY
898 E. 8600 South, Route 1, Box 611, Sandy, Utah

T. B. West & Son

MAPLE BEND NURSERY
FRUIT TREES ORNAMENTAL
SMALL FRUIT PLANTS TREES AND SHRUBS
Also Dwarfs in the Popular Varieties
PERRY, OHIO

RUPTURED

BE *FREE* FROM TRUSS SLAVERY

NOW there is a new modern Non-Surgical treatment that permanently corrects rupture. These Non-Surgical treatments are so certain, that a Lifetime Certificate of Assurance is given. Write today for our New FREE Book that gives facts that may save you painful and expensive surgery, and tells how non-surgically you may again work, live, play and love and enjoy life in the manner you desire. There is no obligation.
Excelsior Hernia Clinic Dept. F-305, Excelsior Springs, Mo.

RASPBERRY VARIETIES

New and old reds, blacks, and purples are discussed

RED RASPBERRIES—**Latham** is a reliable, widely-grown red raspberry that is suited to a wide range of climate and soils. It is one of the hardiest.

Newburgh is also standard and popular in many areas. It is less hardy than **Latham,** but is superior otherwise.

Taylor is popular in New York and is a fine, large berry of better quality than the preceding two. **Milton** is similar to **Taylor;** has added quality of mosaic resistance.

Willamette, an Oregon introduction, is one of the best for freezing. Plants are very productive, but the berries are rather dark for the fresh market, especially where light red color brings a premium.

September, a New York introduction, is very early, bright red, and firm. Plants are productive and apparently escape mosaic to a considerable extent. It is also suited to a wider range of climatic conditions than most other red varieties. A fall crop is borne in September and October on the tips of the new canes.

Early Red, from Michigan, is under trial as a new early variety. **Antietam,** from Maryland, is said to withstand the winters of that state much better than other varieties.

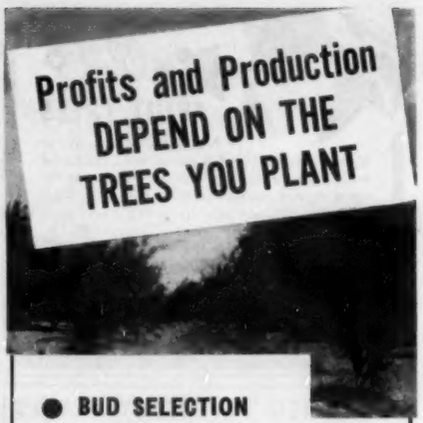
Canby, from Oregon, is a large, attractive variety that has performed well in New York as well as its native state. **Puyallup,** a Washington introduction, is described as larger and firmer than **Washington,** and of better color than **Williamette.**

BLACK RASPBERRIES—**Bristol** and **Dundee** have long been standard in New York, but their merits are just being realized elsewhere.

Cumberland is on the way out in spite of its high quality. **New Logan** is popular with many growers. **Blackhawk,** from Iowa, a midseason to late berry, is being introduced this year.

PURPLE RASPBERRIES—**Sodus** and **Marion** are the best purple varieties, and are likely to remain so for some time.—*George L. Slate, N. Y. Agr. Exp. Sta., Geneva.*

For full descriptions of September and Milton red raspberries, write to the New York State Agricultural Experiment Station, Geneva, N. Y., and ask for Bulletin No. 763.



- **BUD SELECTION**
- **TRUE-TO-NAME VARIETIES**
- **PROVED and PROFITABLE**

The Greening Nursery Company, one of the leaders in bud selection, have for over 100 years given all growers the benefit of their research and improved strains which mean greater orchard profits.

AGENTS

Earn extra money, full or part time. It's pleasant and profitable to sell Greening nursery stock. Write us today for all of the details.

GREENING'S BIG NURSERIES — TREES YOU CAN TRUST — MONROE MICHIGAN

Send 10c to cover postage for the Greening 100-year anniversary 50-page color catalog.

THE GREENING NURSERY CO.
P. O. Box 605, Monroe, Michigan

Now Booking for
FALL 1955—SPRING 1956

ROYAL RED DELICIOUS

(U.S. Pat. No. 1278) Sensational new Red Delicious (sport of Richared). All excellent qualities of parent plus coloring about 2 weeks earlier. A C & O "exclusive."

NERO RED ROME

(T.M. Reg., Pat. Appl. for) New sport, colors early, covers surface with double striping dark red under full color. Fine stability color formation. A C & O "exclusive."

Send for Our Full Color Catalog TODAY!

Columbia & Okanogan Nursery
P.O. Box 116R
WENATCHEE, WASH.

Kelly's FRUIT TREES

• NOW we issue a New York State Dept. of Agriculture certificate which guarantees our cherry trees to be virus-free. Supplies of fruit trees are limited. It will pay you to order early this season. Our fruit trees . . . APPLES, PEARS, CHERRIES, PLUMS, PEACHES . . . are sturdy, northern-grown stock. Write for FREE CATALOG today.

KELLY BROS. NURSERIES, INC.
Established 1880
158 Maple St., Dansville, N. Y.

CERTIFIED BLUEBERRY PLANTS

1 year rooted cuttings $8.00 per 100 $70.00 per 1000. Have a limited amount of 5 to 8 yr. plants in some varieties.

A. G. AMMON
Box 14 CHATSWORTH, NEW JERSEY

NEW STRAWBERRIES
Introduced by
The NYS Agricultural Experiment Station
EDEN • EMPIRE • ERIE
25 plants of each
75 plants $4.25—postpaid
(fully certified)
THE BERRY PATCH
Box 389 Honeoye Falls, N.Y.
(Complete price list free on request)

The How-To Book on Strawberries
by Robin Wyld
Written for the layman and illustrated with cartoons showing how to plant, tend and harvest strawberries.
Sent postpaid on receipt of $1.50
AMERICAN FRUIT GROWER
Willoughby Ohio

Everbearing Strawberry Plants
Bearing age, fresh dug for your order. New Century and Rockhill; 25—$2.00, 50—$3.00. Red Rich, 25—$5.00. Write for prices on other small fruits. All postpaid.
McNEAL BERRY NURSERY
Hamilton, Montana

FRUIT TREES, STRAWBERRY, RASPBERRY AND BLUEBERRY PLANTS

Nut and Shade Trees, Grape Vines, Flowering Shrubs, Evergreens, Dwarf Apple Trees (on mailing 9 and 7 stock). Over 50 years growing and distribution service to planters guarantees satisfaction. Our FREE 60-page catalog illustrates, describes complete nursery line at reasonable prices. Write today.
BOUNTIFUL RIDGE NURSERIES
Box F-45 Princess Anne, Maryland

STRAWBERRIES

are ideal family income projects. One-tenth acre yields 650 - 900 quarts. Allen's Berry Book tells best varieties and How to Grow Them. *Free copy. Write today.*
W. F. ALLEN COMPANY
105 Evergreen Ave., Salisbury, Maryland

STRAWBERRY PLANTS
All leading varieties. High grade, certified stock. Write for catalog and prices.
J. H. SHIVERS PLANT FARMS, Box A-55, Allen, Maryland

BLACK RASPBERRY PLANTS
Certified, disease free, Raspberry plants. Cumberland, Morrison and Bristol plants available at wholesale and retail prices. Contact the Owen Potato Farm, Newark, Ohio.

EVERBEARING STRAWBERRY PLANTS. Prepaid.

Red Rich	25	$5.00	100	$15.00
20th Century	100	$5.00	500	$20.00
Superfection	100	$3.00	500	$12.00
Streamliner	100	$3.50	500	$13.00

DAVIS PLANT FARM Hamilton, Mont.

Are Your Strawberries PROFITABLE?

Here is a measuring stick for comparing your production costs

HOW much is it costing you to produce your strawberries? You might like to get out your figures and compare them with those prepared by Jerry H. Mandigo, district horticultural agent in southwestern Michigan. His figures are a composite of records kept by a half dozen prominent commercial growers in southwestern Michigan.

Mr. Mandigo has made adjustments in the figures between farms based on his knowledge of their operations, the severity of the weed problem in their particular fields, and the type of mechanical equipment used. These adjustments were made with the idea of bringing the cost figures as near as possible to the average cost of the strictly commercial growers of the area.

The figures will not be true for any individual farm but are presented with the hope that they will provide a measuring stick by which growers can determine how efficiently they are carrying on their strawberry operation.

Here are Jerry Mandigo's figures:

STRAWBERRY PRODUCTION COSTS

First Year Cost Per Acre Up To Picking Time (2nd Year)	**1 acre**
Plants @ $8.00 per M, 7,000 plants per acre	$ 56.00
Planting at rate of 12,000 per 10 hour day	14.00
Hand hoeing	35.00
Pinching blossoms	7.50
Wiggle hoeing and late season cultivation	25.00
Spraying cost	8.00
Fertilizer at 1,000 lbs. per acre	34.00
Sidedress with starter solution, $4.00 labor; $4.00 materials	8.00
Preparation of ground for planting	12.00
Machine mulching	7.50
1½ tons straw at $20.00 per ton	30.00
Fall application of chemical weed spray, $7.30 materials; $2.00 labor	9.30
Hand weeding previous to picking	12.00
Total	$258.30
Cost from First Year Harvest Up to Second Year Harvest	
Total insect and disease control sprays	$ 8.00
Post picking rototilling @ $6.00 per acre x 3	18.00
Post picking hoeing	36.00
Early and late fertilizers	18.00
Mulching (total cost)	37.50
Frost prevention	13.00
Irrigation average of 3 acre inches per year @ $8.00	24.00
Total	$154.50

EFFECT OF YIELDS ON UNIT COSTS IN STRAWBERRY PRODUCTION

ITEM	Cost per Pound
(Distribution of first year costs over three harvest seasons: $258 ÷ 3 = $86 a year.)	
First year production costs with a yield of:	
140 crates (16-quart crates, about 23 pounds without stems) per acre ($86 ÷ 3200 pounds)	2.7
200 crates per acre ($86 ÷ 4600 pounds)	1.8
400 crates per acre ($86 ÷ 9200 pounds)	0.9
Overhead costs (land, machinery, equipment)	
140 crates per acre	2.0
200 crates per acre	1.75
400 crates per acre	0.9
Picking rate, less 5% for loss	
First year total costs with yield of:	
140 crates per acre (2.7 + 2.0 + 8.4)	13.1
200 crates per acre (1.8 + 1.75 + 8.4)	11.95
400 crates per acre (0.9 + 0.9 + 8.4)	10.2
Second or third year production costs with a yield of:	
140 crates per acre ($86 + $154 = $240 ÷ 3200 pounds)	7.5
200 crates per acre ($240 ÷ 4600 pounds)	5.2
400 crates per acre ($240 ÷ 9200 pounds)	2.6
Second or third year total costs with a yield of:	
140 crates per acre (7.5 + 2.0 + 8.4)	17.9
200 crates per acre (5.2 + 1.75 + 8.4)	15.35
400 crates per acre (2.6 + 0.9 + 8.4)	11.9

STRAWBERRY VARIETIES

(*Continued from page* 47)

resistant to the common race of red stele fungus.

Varieties introduced about 1950 that have been tested rather extensively are **Armore, Tennessean,** and **Vermilion. Armore** was introduced by the Missouri station as a replacement for Aroma in the western part of Region 4. It ripens in late-midseason and has large rather irregular-shaped fruit, good flavor, and bright red color. It is not satisfactory in frozen pack. The plants are vigorous, runner freely, and are very productive, but the leaves are very susceptible to leaf spot and mildew.

Tennessean is an early variety. Its fruit is too small and too soft to compete with Blakemore and Dixieland for commercial use. **Vermilion** appears to be adapted to the upper parts of Regions 3 and 4 and throughout Region 5. Its vigorous plants are resistant to red stele and are very productive. The fruit is dark red, of about the same degree of firmness as Sparkle, large, with fair to very good flavor. THE END

This article is a condensation of a talk delivered by Dr. D. H. Scott, USDA, Beltsville, Md., at the joint American Pomological Society and Illinois State Horticultural Society in November, 1954.

GROW VIRUS-FREE STRAWBERRIES

(*Continued from page* 13)

could maintain plants in a virus-free condition. The plantings were isolated from other strawberries by at least 3,000 feet and dusted occasionally with parathion to control aphid vectors.

In 1951 aphids invaded the plantings and carried some virus into the new stalks, and therefore the plants could not be used as foundation stock. In 1952 and 1953 frequent dusting (every 2 weeks from time of planting until late November) with 1 per cent parathion at 25 to 30 pounds per acre controlled aphids, and in 1953 the plants were released to nurserymen by the USDA as foundation stocks.

Virus Control Measures

Experience obtained during the past several years indicates that nursery stocks can be maintained in a substantially virus-free condition by use of three important control measures:

1) Plant only virus-free, aphid-free stocks.

2) Isolate the planting from other strawberries, including wild plants, by at least 3,000 feet.

3) Dust the plants regularly every 2 weeks from time of planting until late fall with 1 per cent parathion or 4 per cent malathion, using a tractor-drawn power duster with 2 or 3 nozzles per row set to deliver 25 to 30 pounds of dust per acre.

The most economical control measure for fruiting fields has not been worked out. The rapidity of virus infection depends upon various factors such as how many aphids are present in near-by plantings, whether there is a source of virus near at hand, whether weather conditions favor aphids, and whether any aphid control measures are used.

There is no information yet on how rapidly or how severely strawberry stocks degenerate from virus infection. There are several different strawberry viruses and the severity of damage to strawberries depends on which virus or combinations of viruses are present.

Varieties differ in their tolerance to viruses. Varieties that appear most sensitive are Catskill, Midland, Redstar, and Fairpeake. Those that seem moderately tolerant are Blakemore, Howard 17, Dunlap, and Robinson. Some virus-infected stocks of even the tolerant varieties are noticeably less vigorous than virus-free stocks of the same variety. No varieties are known to be immune.

The two most common virus types in strawberries in eastern United States were designated Type 1 (V^1) and Type 2 (V^2) by J. B. Demaree and C. P. Marcus. Neither of them causes distinctive foliage symptoms in most eastern varieties of strawberries and thus it is impossible to rogue plants that have them. They are detected by indexing by grafting to *Fragaria vesca,* a wild species of strawberry that is very virus-sensitive.

Because virus-infected plants cannot be rogued from strawberry fields, nurserymen must plant foundation stocks in order to obtain high-quality plants for fruit growers. A few nurserymen are growing their foundation stocks in screenhouses to insure complete freedom from viruses and aphids. At present three nurserymen in Massachusetts, one in Delaware, and one in Tennessee are known to be using this procedure. Tennessee was the first state in the East to set up a certification program for strawberry plants, and the Tennessee State Department of Agriculture, now has a list of nurserymen offering certified virus-free plants for sale in 1955.

The Nematode Problem

Root-knot and meadow nematodes when present in large numbers may be as damaging to strawberry plants as viruses. Recent surveys have indicated that nematodes are frequently present on strawberry roots, including those of the virus-free plants that are available for planting in 1955.

Strawberry planting stocks can be freed of nematodes by following a procedure developed by A. C. Goheen and J. R. McGrew at Beltsville. Their studies showed that strawberry roots can be freed of nematodes without injury to the plants by giving dormant plants a hot-water treatment of 127° F. for 2 minutes.

To avoid injury, it is important that the plants be fully dormant when treated. In Maryland plants are fully dormant by the end of December, and they can be maintained in dormant condition by holding in cold storage until time to plant. They should be planted immediately after hot water treatment. THE END

Now at long last you can have that greenhouse you've been wanting. For $250 you can build an 18x84-foot plastic greenhouse which would cost you $4,000 if constructed of glass. Send 25 cents in coin or stamps to AMERICAN FRUIT GROWER, Willoughby, Ohio, for working drawings prepared by the University of Kentucky, together with descriptive leaflet.

STRAWBERRY PLANTS

Certified

For your information, over a period of years, most of the highest yields of strawberries in Tenn. Three to four hundred crates per acre. The plants came from our farm. We are now growing the leading varieties of virus-free plants. If you have not tried Romines Plants, it may pay you well to write for full information on growing strawberries.

ROMINES PLANT FARM
PHONE 241 DAYTON, TENN.

PEACHES
PEARS
PLUMS
PRUNES
APRICOTS
NECTARINES
BERRIES
GRAPES

WRITE FOR CATALOG

VAN WELL NURSERY
WENATCHEE, WASH.

FRUIT, NUT & DWARF TREES

Apples, Pears, Peaches, Prunes, Apricots, etc., Flowering and Shade Trees, Berry Plants, Fall Bulbs.
Free 48 Page Catalog
SHERWOOD, ORE
TUALATIN VALLEY NURSERIES

STATE CERTIFIED CULTIVATED
BLUEBERRY PLANTS
Wholesale and Retail
17 VARIETIES
Order now for Spring Planting
MONROE FARMS
Box 555, Browns Mills, N. J.
Send for Literature and price list

Chipman's Canada Red Rhubarb Divisions 5 for $2.45 postpaid. Write for prices on larger quantities.
CHAPMAN BERRY FARM
East Leroy, Mich.

American Fruit Grower

RICHARD T. MEISTER, *Editor*
H. B. TUKEY, *Associate Editor*

• *Fruit for Health* •

The Dual-Purpose Variety and the Processor

WITH slightly over half of all the fruits and vegetables in America now being processed in one form or another, the fact is becoming increasingly clear that here is a market outlet for growers that demands major attention.

Not long ago, the fresh fruit outlet was the only real consideration. Canning and preserving was still done by Mrs. Housewife with fruit which she purchased on the fresh fruit market. Then came the great advances in commercial canning, freezing, and preserving. The attitude of the grower still was to produce and sell for the fresh fruit market, and to give anything extra to the processor. Varieties were thought of first as fresh fruit varieties, with the possible dual role of processing.

But all of this has changed. It has changed so materially that in many areas the major outlet is to the processor rather than to the fresh fruit trade. Accordingly, the question is properly asked whether the dual-purpose variety, which attempts to satisfy both outlets, still has a place.

The answer is that whenever it is possible to have a variety to satisfy both the fresh and the processing outlet, the better it is for all concerned. Thus, the Bartlett pear satisfies this need; it is the dominant variety for processing and it is the dominant variety for the fresh fruit market. One outlet helps to balance the other.

But the Bartlett pear is almost the exception that proves the rule. Where is the really satisfactory dual-purpose apple? the strawberry? the peach? Perhaps the Concord grape could be considered dual-purpose in some areas, along with limited supplies of the Stanley prune and some sweet cherries. Yet the trend seems to be to seek varieties which will fill particular needs — canning, freezing, brining, fresh fruit market, and so on.

This situation comes about naturally because of the keen competition that we foster in our American free-enterprise system. The area that can supply an especially good product for the special needs of the processor will tend to capture that outlet. It all means that we are going to have to pay increasing attention to the single-purpose variety.

But when growers move to a single outlet for their fruit they are going to ask for some guarantees, either through long-term contracts or through some sort of collective bargaining system. This, too, is a natural development. Processors who are asking growers to move to the single-purpose variety must bear this in mind.

More Research?

"WHAT we need," said a grower, "is more research. What I want to know is whether Seckel will pollinate Bartlett, and somebody ought to get busy and do some research on this problem."

But what this grower wanted was really not someone to get busy on research, but information on research already done. For it was long ago shown through research that Seckel will not set fruit on Bartlett.

The story illustrates a point that needs clearing up. The word "research" has somehow taken on the meaning of "information, please." To be sure, if the facts are not known and no information is available, then the research worker has the job of carrying out some experiments to find out the facts.

Too often, however, the facts are already known. Too often they have not got into the hands of the man who wants to use them. This is not a matter of conducting experiments, it is a matter of distribution.

And this is where the extension worker, the county agent, the horticultural society, and publications like AMERICAN FRUIT GROWER come into the picture. It is their job to distribute the results of research to the man who needs them.

Fruit Talk

Prof. T. Wallace of the **Long Ashton Research Station** feels that grass, low nitrogen, and low potash improve the keeping quality of apples and that highly colored fruit, irrespective of treatment, keeps better than green fruit.

Leonard and **Claypool** of **California** have found that pears which are ripened at 68°-70° F. produce the best dessert quality. Fruits ripened at higher than 70° rated lower in quality.

Fruit growers spent $63 million in 1952 to **spray 3,460,000 acres of fruits.** In 1952 more than 31 million acres of crops and land were treated for control of weeds and brush at a cost of $48 million. Small grain crops and corn represented about 85 per cent of the area treated.

Ed Smith, of **Wenatchee, Wash.,** says that for every acre in apples there is now an investment of $1,000 in cold storage.

Fruit of the Puerto Rican Acerola *(Malpighia punicifolia)* is expected to become commercially important as an **enriching agent** for products low in ascorbic acid. Phenomenal values are reported of 2,000 mg per 100 grams of juice or fruit (50 to 100 times more than many common fruits and vegetables).

The **State Inspection Service** in **Michigan** reports the **removal,** from 1945 to 1953 inclusive, of **1,144,728 fruit trees**—323,052 by owners; 912,676 by the state.

Foliage sprays of **chelated zinc** made in **California** by **J. A. Cook** completely corrected serious zinc deficiency of grapes.

Of the **600,000 acres** to be **irrigated** in the **Columbia Basin** area of **Washington state,** 6.3 per cent is suitable for the growing of fruits. The present 94,000 acres of apples and pears are expected to jump to 102,500, and the 37,500 acres of peaches and other soft fruits will reach 55,000 acres.

The commercial storage of fruits, vegetables, and florist and nursery stocks is the title of Agricultural Handbook No. 66 issued by the USDA and available from the Government Printing Office, Washington 25, D. C., for 30 cents.

A **New York state** survey reports **highest-yielding apple trees** to be in the 20-39 age group, while trees over 40 years of age are in company with those of 15-19 years of age.

Many **weather proverbs,** says **R. E. Spencer** of the **U. S. Weather Service,** make good sense. "A late spring never deceives" and "Better to be bitten by a snake than to feel the sun in March" are directed at late spring frosts, and "A year of snow is a year of plenty" means plenty of moisture for a good season.

Psychologists report that a **hungry person** enjoys a **keener sense of smell** than one who has just eaten—an additional argument for staying on the lean side, "the better to enjoy the aroma, my dear," as Little Red Riding Hood might have said. *H.B.T.*

Coming Next Month

- Bees—Where to Place Them in the Orchard
- Artificial Pollination for Increasing Fruit Set
- How a Kentucky Grower Thins His Peaches
- A Picture Study of Apple Leaves
- The Fruit Areas of America—Georgia

a new antibiotic fungicide

Actispray Soluble tablets

TRADEMARK

Destroys Cherry Leaf Spot established for periods up to 96 hours!

Easy to use

Add the readily-soluble antibiotic tablets directly to the tank with agitator running.

Economical

One tablet to 100 gallons of water gives a 1 ppm. solution sufficient to treat up to 20-25 trees.

Use Actispray . . .

on both sweet and sour cherry trees. Recommended for pre- and post-harvest spray on bearing trees, non-bearing trees, nursery stock and transplanted trees one or two years old.

Rapid in action

Has an eradicating effect on fungus within one hour following its application to the diseased leaf. Rains after this one-hour period will not limit the effectiveness of Actispray.

Proved effectiveness

Extensive tests for as many as six seasons by experiment stations in Michigan, New York, Missouri, Wisconsin and Ohio have shown that Actispray is an outstanding fungicide.

Actispray is a product of
The Upjohn Company, Kalamazoo, Michigan
For complete information, write to:

Exclusive distributor: **Niagara** Chemical Division
Food Machinery and Chemical Corporation
MIDDLEPORT, NEW YORK

Actispray antibiotic tablets are available in convenient glass tubes, 24 tablets to a package.

SYSTOX®
on
APPLES

SYSTOX is a systemic insecticide. Sprayed on apple trees SYSTOX penetrates the sap stream and, in effect, "inoculates" the foliage against aphids and mites.

Four years of testing on apples by Federal and State agencies and one year of commercial application to apples have proven the remarkably long-lasting and effective control afforded by SYSTOX. Used as recommended it is harmless to trees and fruit and causes no off-flavor in apples or apple products. SYSTOX residues are negligible – less than one quarter part per million at harvest.

For initial kill plus residual control of aphids and mites, the performance of SYSTOX is unique and unmatched by any other pesticide.

What advantages has SYSTOX?

1. **SYSTOX** is *specific in its action* and highly effective against aphids and mites.
2. **SYSTOX** gives *long residual effect* at relatively low dosages.
3. **SYSTOX** is *harmless to beneficial predators* after application.
4. **SYSTOX** is *harmless to bees* and other pollinating insects after application.
5. **SYSTOX** is *not washed off by rain* and hence requires less frequent application.
6. **SYSTOX** translocates to and *protects new foliage* developing after application.
7. Low dosage + high efficiency + infrequent application = *economic control.*

Chemagro Corporation, NEW YORK, N. Y.